THE OIL WEEKLY

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The Oil Man's Calendar

APR.	
13-15	**Petroleum Industry Electrical Association, Rice Hotel, Houston.**
13-15	**National Petroleum Association, Cleveland, Ohio.**
14-15	**A.P.I., Eastern District, Division of Production, William Penn Hotel, Pittsburgh, Pennsylvania.**
17-21	**American Chemical Society, Dallas, Texas.**
19	**A.P.I., Division of Production, Pacific Coast District, Spring Meeting, Biltmore Hotel, Los Angeles.**
19	**Western Petroleum Refiners Association, Hot Springs, Arkansas.**
28-29	**Sectional-Regional Transportation & Maintenance Meeting, Society of Automotive Engineers, Cleveland, Ohio.**
29-30	**Interstate Oil Compact Commission, Allis Hotel, Wichita, Kansas.**
29-30	**Independent Petroleum Association of America, Executive Committee Meeting, Allis, Hotel, Wichita, Kansas.**
MAY	
9-12	**American Gas Association, Natural Gas Department, New Orleans, La.**
11-13	**Natural Gasoline Association of America, Hotel Tulsa, Tulsa.**
12-14	**National Oil Scouts Association of America, Tulsa, Oklahoma.**
14-21	**International Petroleum Exposition, Tulsa, Oklahoma.**
23-25	**A.P.I., Mid-Year Meeting, Allis and Lassen Hotels, Wichita, Kansas.**
27-28	**Seventh Annual Petroleum & Natural Gas Conference, Penn. State College, Penn. Grade Crude Oil Assn., and Penn. Natural Gas Men's Assn., State College, Pennsylvania.**
JUNE	
4	**Illinois-Indiana Petroleum Association, Sixth Annual Conference, Robinson, Illinois.**

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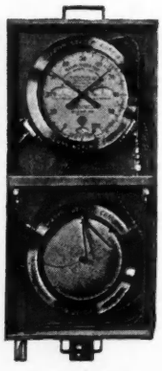

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LOOKING AHEAD

WITH THE EDITOR

May lose half billion barrels of oil in East Texas . . .
Unrestricted water output would cause loss . . .
Water proration and well remedial work urged . . .

IT seems almost incredible, in the light of the great strides made in oil field technology in recent years, that if present practices in the great East Texas field are continued that there may be a loss of 350 to 625 million barrels of oil that otherwise might be produced. Yet, that was the inference drawn from a paper presented before the Fort Worth meeting of the A.P.I. Division of Production by Stewart E. Buckley.

THIS loss is to be the result of unrestricted water production. Buckley says: "The rate of water production has increased since June, 1935, in a regular, semi-logarithmic manner with time. Should the future rate of increase follow the same trend, then the entire benefits expected to be obtained through restricted rates of oil production are in danger of being obliterated during the next two years. It is indicated that the supposed increased rate of water production would lower the pressure more in the next two years than the oil production alone would lower it during the remainder of the life of the field."

BUCKLEY proposes a restriction on the water output of the field, something like that on oil production, and remedial work on the larger water producing wells as a means of overcoming this possible great economic loss.

KNOWING that you will be interested in reading the interesting ideas for saving and recovering an otherwise lost volume of oil equivalant to the combined cumulative total production of Spindletop, Humble and Powell fields—the April 11 issue of THE OIL WEEKLY will publish Buckley's paper in full.

The changing panorama

VOLUNTARY agreements within the oil industry, subject to federal government approval, were recommended March 30 by Russell B. Brown, general counsel of the Independent Petroleum Association, as a panacea for present ills of the industry.

Pointing out that, while the producers of oil have developed a workable plan for balancing supply and demand, the refiners have continued processing despite declining demand, Brown told the Bradford District (Pa.) producers that an industry cannot be healthy while one important branch of it is sick.

Voluntary agreements, he said, would make regulation of refining possible. Such agreements would protect the independents and insure continued competition—which cannot be assured while the weaker units are dropping by the wayside.

Compact Commission Promotes Stability

More important than some other meetings of the Interstate Oil Compact Commission will be that at Wichita, Kansas, April 29-30. For it has continued desirable, in view of the business slump and lagging oil consumption, to maintain exceptionally strict control of crude oil production. And the interstate compact has proved an effective force for promoting cooperation among the states in balancing crude production with market demand.

It may be expected that the compact commission will continue to promote effective crude control, for the commission's chairman, Ernest O. Thompson, member of the Texas Railroad Commission, has been preaching for several months that strict control is needed, while practicing that preaching by sponsoring moderate allowables and Sunday shut-downs in Texas.

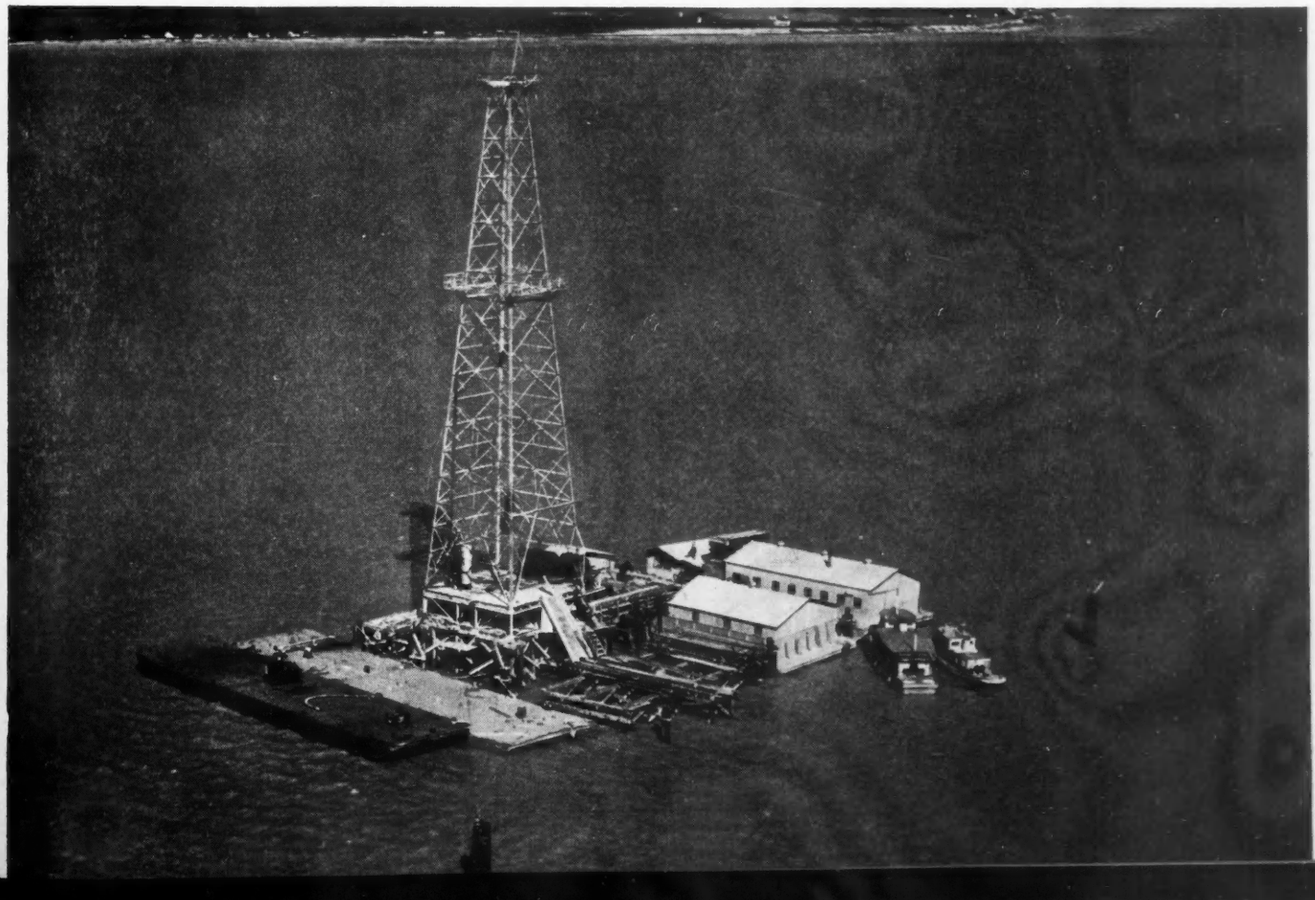
Elk Hills Litigation Advances

The 5-year fight of the United States Department of Interior to recover Elk Hills, California, oil lands, worth millions of dollars and considered highly valuable for national defense, moved into its final phase last week, with issuance of a determination by the commissioner of the general land office that title to Section 16 rested in the government.

A similar finding with respect to Section 36, made by the department in 1935, was upheld by the district court in February and is now on appeal to the higher courts.

Madison Defendants Again Before Court

Madison, Wisconsin, scene of the long trial of a group of oil companies and officials on the charges of illegal gasoline price fixing, came into the limelight again last week. Federal Judge Patrick T. Stone was hearing arguments on separate motions of the de-



Galveston Bay's first oil well is shown in this remarkable aerial view. It is the property of Standard Oil Company of Texas and Salt Dome Oil Corporation. In the background is Cedar Point, from which the field gets its name. The oil is being barged from the location, as can be seen by the barge to the left. The separator has been installed on the derrick floor. The two houses on the right of the derrick are two floating barges that house the Diesel engines and pumps used in drilling the test.

fendants. Some of the motions asked for dismissal of the Jury's verdict and acquittal of the defendants, while others asked for new trials for the defendants.

It was indicated that the court would take the motions under advisement after hearing the arguments of the defense attorneys.

After the defendants were convicted by a federal court jury last January 22, their attorneys filed these motions, and the court deferred sentences pending hearings on the motions.

Mexico for Mexicans!

"Mexico for Mexicans" threatens to become just that as the state department at Washington prepares to abandon its "good neighbor" policy in favor of an iron-clad attitude of disapproval of the expropriation by the Mexican government of American and British oil properties.

First results of the United States government's new attitude were the withdrawal from the agreement to purchase up to 5,000,000 ounces a month of Mexican silver at 45 cents an ounce and the following drop of one cent an ounce each day in the New York price. On a 5,000,000-ounce production basis, Mexican income drops $500,000 a month for each cent by which the world price of silver declines, with possibilities that it may drop to 30 cents or lower.

State department officials are reticent as to the oil situation, explaining they are still studying the voluminous brief of protest filed by the affected companies. But Secretary Hull has made it clear that the government in Washington will drop all of the activities which have been exerted in past years to aid Mexico. The British government is expected to follow suit, and Mexico may find itself isolated from two of its most important contacts.

Troubles Taken Over With Properties

Meanwhile, the Mexican government already has run into serious difficulties in attempting to operate the confiscated oil properties. Although the properties were seized, the established export markets for Mexican oils could not be similarly grabbed. And since Mexico has been exporting over half its production, the result has been a virtual filling up of all available storage already, and a forced curtailment of production, while the government officials desperately look around for buyers. It has been indicated, moreover, that the ousted oil companies would complicate the marketing problem, by contesting the Mexican government's title to the oil.

Furthermore, the marketing problem is only one trouble that has immediately led to another—dissatisfaction of the unionized Mexican oil workers with their government's inability to put into effect the higher wages and special benefits which the oil companies were ordered to inaugurate, or even to maintain the former wages and employment. In addition, workers in other industries, particularly the mining operations, were growing critical of the government, because of the depreciating peso and sharply rising living costs brought on by the expropriation decree.

Drilling

RUSSELL County, Kansas, scored one new pool southeast of Letsch and a wildcat showing for a producer. Possible field openers also loomed as a result of showings in wildcats in Graham, Reno and Barton counties. Sittner pool of Stafford County got a mile west extension and Wherry pool, Rice County, got a half-mile west extension.

Oklahoma recorded a new field in Seminole County and another probable new pool in Payne County. Cement pool in Caddo County and Oklahoma City's dolomite sector were provided with extensions.

Two west outposts of K-M-A field in North Texas forecast important extensions.

The Yoakum County part of Wasson field in West Texas was extended two thirds of a mile northeast by a 348-barrel well. A Snyder field outpost is showing for a producer while two Slaughter pool outposts have fixed the water table.

The Balcones Fault district got a shallow Austin chalk field in Guadalupe County and a shallow Serpentine oil showing in a Medina County wildcat.

Greta sand production in South Texas was found 9000 feet east of Plymouth field in San Patricio County and Turkey Creek of Nueces County received three extensions to two sands. A new Government Wells sand field is being opened in northern Duval County, and two Mirando sand fields appear possible at the common corner of Webb, Duval, McMullen and La Salle Counties. North Sweden's 5500-foot sand was extended east. A well attempting to open a deeper pay in Oilton is showing for a wet gasser.

The world's deepest drilling well, in California, reached 15,004 feet.

Market briefs

Outlook—No early change in present stable situation indicated.

Crude Markets—Prices continue steady.

Refined Oil Markets — Gasoline prices hold recent gains.

CURRENT OPERATIONS

Week Ended	Daily Crude Production	Daily Crude Runs to Stills
March 26	3,405,600	3,080,000
Previous week	3,433,550	3,080,000
Year ago	3,431,300	3,030,000

CRUDE STOCKS

Date	Crude Oil (Barrels)
March 19	306,380,000
Week ago	305,566,000
Year ago	291,555,000

REFINED OIL STOCKS

Date	Gasoline (Barrels)	Gas & Fuel Oil (Barrels)
March 26	92,858,000	122,969,000
Week ago	93,192,000	122,067,000
Year ago	83,538,000	96,591,000

DRILLING

Period	Wells Completed
Past week	444
Previous week	497
Year ago	445
Year Total:	
This year	6,363
Last year	6,404

Technology

SOME of the most remarkable photographs of efforts to extinguish and cap a burning oil well were taken during the 60 days D. Davenport's test at La Blanca, Texas, ran wild. These are the more remarkable, for still pictures, in that they tell the complete story of the fight in detail. They are reproduced in an interesting pictorial story starting on page 19.

Drilling and producing problems in the Permian Basin of West Texas are many and varied. For example reservoirs include those with combined active water and gas drive, gas drive, and those requiring artificial lift at discovery. Difficulties and operating methods are discussed by W. T. Doherty of Humble Oil & Refining Company. See page 26.

Drilling time records are being used for a number of important purposes in the Goldsmith field. Casing points, total depths, method of acidization, and the placing of nitro shots, may be determined by this method. It also furnishes valuable information for remedial work, such as plug back depths, selection of packer seats, liner positions and pipe perforations. How drilling time records are procured and used is Max David's subject on page 39.

With marine drilling becoming more common along the Texas Gulf Coast, I. W. Alcorn's article on page 48 should be of interest. He describes typical drilling locations, gives operating difficulties, comments on foundations and equipment applicable to various types of locations.

Time for Thought in Mexico

As things now stand with reference to the expropriation of foreign oil company properties in Mexico. all three elements involved in it stand to lose. In view of this situation it is to be hoped that the application of the oil companies to the courts of Mexico will solve the problem and avoid the losses and chaos which otherwise will inevitably follow.

By this time—less than two weeks from the date of the expropriation, the oil workers have come to realize that they have not been benefited and if they will take a calm look at the situation they will realize that they cannot ultimately hope to gain by expropriation. To begin with, the government finds itself unable to put into effect the wage scale which it had demanded be put into effect by the oil companies. The workers surely have begun to realize that there is more to the oil business than simply following the instructions laid down by his company jeffe.

By this time the government has found that before oil can be turned into money it must be sold. That selling involves markets, transportation and terminals; that the oil companies have spent many years in building up such markets and facilities throughout the world and that other than Mexican oil can supply the market demand which had been built up. In other words, Mexico is beginning to learn that the demand was for **oil,** not necessarily Mexican oil. The Mexican government must by this time be cognizant of the fact that 90 percent of its foreign market was in the United States or Great Britain, or to foreign refineries owned by the very companies whose properties have been taken over. The Mexican government must by this time be cognizant of the fact that tankers to transport crude petroleum are hard to find, and that there is grave danger of the oil being seized to satisfy claims against the Mexican government the minute it moves into a foreign port—and that independent transportation companies will not likely risk having their tankers tied up.

True, some European countries might be attracted to Mexico by a bargain price, but the wage scale cannot be sustained on bargain prices. And always there is that question of tankers and title to the oil, and the problem of pay in merchandise instead of cash will be a serious one.

The government must realize, too, that the governmental income from oil played a very important part in paying its expenses, and that much as the government might like to favor a labor organization, it must have cash on which to operate.

If the government hopes to make a deal with a Pacific power to build a pipe line across the isthmus to a Pacific port, it should realize that any line likely to be built would require many months in its construction, that even if the cost is to be taken from the sale of oil it will be a long time before the sale of oil would exceed the debt—and that any line likely to be built would not be large enough to solve its export problem. The prospective line builder would realize this too, not to mention the danger of depending upon a supply of fuel so far from its base.

The Mexican government probably realizes more today than it did some time ago, the danger of offending its northern neighbor by the seizure. The United States State Department has not questioned the right of Mexico to buy the properties, but insists that such purchase must be made fairly. What the English government has to say has not been made public but it will likely be even stronger than what the United States government has said.

Mexico has three great money crops—silver, oil and the American tourist trade. Should all of these be stopped, ready cash in Mexico would be most seriously affected.

THEREFORE the Mexican government must realize that it must pay for the properties taken, and pay for them in something other than worthless currency printed for the purpose. Not to pay for the properties would place Mexico in a category among nations which the pride of the Mexican people would not like—a nation honestly trying to meet its obligations, or not buying that for which it cannot pay —or the role of a bandit nation. That is the choice of the Mexican government—and it is short of cash with which to pay the bill.

From a practical standpoint there might be a possibility of a work-out purchase of the properties, but the logical workout would be between the very companies whose properties have been taken and the Mexican government. In other words, if a fair valuation of the properties could be reached, the companies might be willing to sell their properties and take payment in oil f.o.b. Mexican ports. But even this idea—the fairest and most practical of any we have been able to think of, would mean a lower wage scale than the workers proposed, because the government would need more cash than it could expect to get under such a deal to pay any wages.

(Note: The above suggestion is entirely personal and has not been discussed with any oil company.)

It is our belief that the Mexican government and the workers probably felt that the value of Mexican oil was so great that the companies could and would pay the exorbitant wage scale proposed, rather than give up the properties. We suspect that both workers and government were greatly surprised to find that the oil companies felt that they had come to the end of their rope.

The oil companies of course, would like to retain their properties. They are in the oil business. The properties are valuable. But they aren't valuable enough to pay just any price to retain them.

THE MATTER is still before the courts, the oil companies contending that the expropriation has been

undertaken in an illegal manner. It is to be hoped that when the Mexican courts come to decide upon the question, they will not allow prejudice or an ultra-nationalistic feeling to lead them into a decision which cannot but adversely affect the Republic of Mexico and its people.

And in the meantime the Mexican government has a real job on its hands in protecting the properties, lest their value, either to the oil companies or to the government itself, be damaged. This will be a difficult course because the physical, technical improvements and equipment on the properties still have much of the atmosphere of the hated foreign ownership about it to the syndicalists.

Mexico's Oil Muddle

Expropriated companies prepare for legal action April 5 . . . Cardenas to convene congress April 11 . . . "All is not well in labor circles," says Flores.

THE jumble or rapidly changing patterns on the interior of a revolving kaleidoscope, impressing you for a flash with their ephemeral design and destiny on the ground glass, but defying you to say how long they will exist or what their momentum's influence will be in fashioning the next intricate design when the instrument trembles again—that's the Mexican oil situation today.

It's still a situation where one man's guess is as good as another's as to what the ultimate outcome will be. But both sides of the battle, the expropriated foreign controlled oil companies in one set of dugouts and the government in the opposite ones, are preparing to stand up for their respective conceptions of right. And the next fortnight promises an array of vital developments.

The oil companies, losers temporarily of a $400,000,000 industry in Mexico through the March 18 expropriation decree of President Lazaro Cardenas, have until April 5 to initiate legal proceedings to recover the lost properties. Legal counsel of the oil companies have indicated two lines of action. One provides for filing injunction proceedings seeking to declare the expropriation law under which the companies' properties were seized unconstitutional. Another move will be directed in the Mexican courts toward revocation of the expropriation decree of March 18.

Executives of the 17 companies involved in the expropriation are credited with starting March 31 they were ready to fight the expropriation to the supreme court, and the oil industry internationally awaits with interest reports of the first legal skirmish, which probably will be available for publication in the next issue of The OIL WEEKLY.

Eagle Acts

Meanwhile, Mexican Eagle Oil Company has filed the first suit against the government since the expropriation. It seeks an injunction against the government's action in attaching 5,000,000 pesos (about $1,250,000 U. S.) of the company funds claimed as due for tax on money exported some years ago—an injunction against the government's occupying Mexican Eagle's office building in Mexico City and seizing checks and other negotiable paper worth about $25,000 and receiving all mail and telegrams addressed to the company. These actions, the company asserts, are unconstitutional.

Huasteca Petroleum Company, which likewise has been deprived of its headquarters in Mexico City has lately been forced to carry advertisements in Mexican newspapers saying that as its headquarters has been occupied by persons not connected with the firm it cannot receive notifications and so forth at what was previously its headquarters, but that it soon will establish offices for its legal representative.

The proposed down payment on the part of the Mexican government of $20,000,000 on the expropriation involving 20 times that much not having seemed sufficient in some quarters, the Mexican government continues in a dilemma as to just how to pay for the properties taken over. It has been embarrassed, too, by references to the government's tardiness in paying for ranches owned by foreigners which the government expropriated some years ago.

Cardenas is reputed to have announced along with the expropriation that there would be no special tax burden put on future generations to take care of the cost of the oil industry expropriation, that the expense would be met by voluntary contributions and the issuance of bonds. April 1 it was indicated that by totaling the individual manifestations of willingness to cooperate in this respect, either by donations or by the purchase of the proposed bonds, a sum far short of what is necessary would be reached.

Congress Called

The president of the Mexican republic has, however, called a special session of congress to convene April 11 to consider economic legislation forced by confiscation of the oil industry and suspension April 1 of the United States silver purchasing agreement. Earlier in the week Cardenas had asked modification of Mexico's export and import duties. These were the subject of in-

MORE OF WHAT THE OIL COMPANIES MIGHT BE ABLE TO ESTABLISH BEFORE THE MEXICAN COURT

(The following points are a continuation of the 10 legal issues set forth on page 30 of the March 28 issue of The OIL WEEKLY)

That the decision of the supreme court of Mexico on March 1 in the injunction case of the oil companies was not correct because:

11. Legally, the execution of a contract binding upon the entire industry could not be demanded without violating Article 58 of Mexico's Federal Labor Law.

12. The conflict in question was not one of an economic order under the provisions of Articles 570 and 583 of the Federal Labor Law.

13. Articles 16, 550, 553 and 576 of the Federal Labor Law were violated when certain proofs were not studied and others were unduly considered in making the award.

14. The award deprived the companies of the rights granted them by the collective contracts then in force and was, hence, a violation of Article 33, Fractions I and II, Articles 113 and 576 of the Federal Labor Law.

15. The award impeded the companies from the freedom to work as guaranteed by Article 4 of the Constitution of the Republic of Mexico.

16. In fixing the details of the wording of the clauses of the labor contract, various violations were caused, such as limitation of confidential positions, indemnifications for causes beyond the control of the employers, seniority without being in service, etc.

17. Despite the fact that the imputability of the strike was not subject matter of the controversy, the award imputed same to the companies for the sole purpose of condemning them to payment of strike wages—which action was a violation of Articles 271, 551, and 571 of the Federal Labor Law.

formal American protest when they were sharply raised in January. Equal rights to women were also urged in Cardenas' call.

Mexico's government is much disturbed over the firm attitude of the state department of the United States as manifested in the past week. A Mexican government official is quoted as saying that the oil protest from the department of state said in effect:

"Since Mexico has been unable to pay for lands expropriated from Americans under Mexico's agrarian program, how could it be expected to pay the larger amounts involved in the oil properties?" (The farm lands were valued at $80,000,000.)

Mexico's peso, quoted at 3.60 pesos to the American dollar on the day of expropriation, has since decreased in value to the point where at one time it was quoted at 5.15 pesos to the dollar.

It is said that 10 senators are preparing to ask Cardenas at the special April 11 session how Mexico expects to pay for the oil properties.

Disposal of Oil

Mexico's main financial dilemma continues to be the problem of disposing of its excess oil, notwithstanding the stringent curtailment of production already in effect. March 21 the government announced formation of National Oil Exporting Company to handle foreign sales. Gustavo Espinosa Mireles, head of the Mexican division of Pan American Airways, was appointed general manager of the new organization and empowered with sole authority to do business for the Mexican government in the matter of crude and refined export transactions.

In this connection THE OIL WEEKLY was informed on the same day of negotiations by San Antonio, Texas, interests for 100,000 barrels weekly of Mexican crude. This presumably was for a third party, as San Antonio has no refinery capable of handling that much oil. The Texas Company and Humble Oil & Refining Company each have plants there capable of handling 5,000 barrels per day, while Pioneer Oil & Refining Company and Phoenix Refining Company each have 1,500-barrel plants. It is not likely either of the two major companies mentioned would, under the present circumstances, want Mexican crude.

Burch Cochran, San Antonio oil man, was reported in Mexico City March 31 winding up details of a deal for Mexican crude. The amount of crude involved in the rumored transaction could not be determined. However, a telgeraphed query from THE OIL WEEKLY to Cochran at his Mexico City hotel elicited the following reply:

"RETEL AM NOT WORKING ON ANY DEAL TO SELL CRUDE MENTIONED STOP YOUR INFORMANT IS IN ERROR"

Delivery Difficult

One oil man who returned from Mexico during the week stated he did not see how delivery could be obtained on as much as 100,000 barrels a week of Mexican crude even if the deal were completed. He said there simply were not enough tank cars available to deliver it across the American border and that the handling of such an amount in tank ships would call for a schedule of three tankers every two weeks. He said he did not believe current schedules of independent tanker lines would permit,—also under present circumstances, —allocation of three tankers each two weeks to Mexican ports. Several tankers which formerly loaded at Tampico have, since the expropriation decree, taken on cargoes at Texas City, Corpus Christi and Houston. By opening the chokes on wells in Texas alone less than 1,152 (less than two per cent) all the oil Mexico has been importing to the United States would be more than taken care of—and probably to the pleasure of Texas producers. Colenel E. O. Thompson of the Texas Railroad Commission says imports from Mexico annually are less than a week's normal pipe line runs in Texas.

A man who said that he was the private secretary of Francis W. Ricketts, English oil negotiator who attracted international attention through his promotion of the Abyssinian deal, returned to the United States by plane Friday after having been reported to be in negotiation with the government on the purchase of 25,000,000 barrels of oil. Reporters declared that the man in person was Ricketts himself, but he said that his name was Richards.

Ickes Not Bothered

On the other hand, expropriation of the Mexican properties was seen by Secretary of the Interior Harold L. Ickes March 31 as the possible solution of the industry's problem of excessive above-ground stocks in the United States.

Explaining that such a solution was contingent upon several factors, the secretary pointed out that "if," as has been stated in unconfirmed reports, the Mexican oil eventually is purchased by Japan, Italy or Germany, it would increase the demand for demestic oil since normally large supplies are brought into the United States from Mexico.

The secretary expressed the opinion that such a situation would not be harmful because it would serve to reduce stocks of crude and gasoline now threatening the stability of the domestic industry.

"We normally receive large oil supplies from Mexico," he explained. "If the Cardenas government succeeds in finding European or other markets for oil formerly taken up by American and British companies our own wells may be called upon for greater production."

Big Purchaser Rumor Nonsense

Mexican Eagle Oil Company executives in Mexico City April 1 classified as nonsense reports emanating from abroad and rather widely circulated in the Mexican capitol to the effect that a strong French syndicate backed by the Royal Dutch Shell Group is negotiating to purchase much of the government's oil.

All Is Not Well

Apparently all is not well in the labor circles in Mexico. The great ovation given Cardenas' expropriation decree of March 18 did not represent the unanimous opinion of the Mexican people. On March 30 Carlos Flores, labor department inspector in Tampico and a member of the powerful union there which controls 6000 ex-employes of Mexican Eagle Oil Company (El Aguila), is credited with saying that the government "took advantage of the labor-capital conflict to create international political conflict" by the expropration.

Flores contradicted essertions by union oil field laborers' headquarters in Mexico City to the effect that all was peaceful among the workers. What he characterized as a capital-approved administrative council in Tampico was ousted by the Tampico union which reiterated its demand for increased wages and benefits.

All storage tanks in Tampico are filled to overflowing and there is no place to put the products of refineries in that district. By March 30 nearly 3000 part time workers in Tampico district were laid off, all terminals devoted to carrying on the exporting phase of the oil industry having been shut down.

In contrast to reports from labor syndicate headquarters in Mexico City to the effect that payrolls had been taken care of normally over the week end, reports arriving in Houston March 31 were to the effect that Poza Rica oil field workers did not receive pay checks Saturday or Monday. (Sunday is a regular holiday). In addition to this, a telegram from Mexico City to The OIL WEEKLY March 31 stated that the oil board concelled the 44-hour week previously put into effect by the Tampico council of ex-Huasteca Petroleum Company employes. The same message stated that former employes of Mexian Eagle Oil Company (El Aguila) at Tampico who grumbled loudly because increased wage scales and other benefits awarded by the federal conciliation board and upheld by the supreme court have not been put into effect—and grumbled because their directing council has placed favorites in the best jobs—are branded as bad oil men by the national oil workers union.

More Than $400,000,000

In his most lengthy discussion publicly of the situation so far, United States Secretary of State Hull on March 30, expressed the hope that the problem offered by the expropriation might be quickly and fairly solved, but indicated that the bill against Mexico would be much larger than merely the amount involved in the oil properties taken over and that the Washington government is determined to have a "show-down" on the whole question of the safety of foreign properties in Mexico.

"During the past few years the Mexican government, in pursuance of its national policy, has expropriated and is continuing to expropriate the properties of citizens of other countries in Mexico and of its own citizens," he explained. "Among them have been many hundreds of farms and other properties of American citizens.

"Many of our nationals have invested their savings in these properties, and have undertaken improvements therein of various kinds and have been dependent upon them for their own livelihood.

Must Pay Full Value

"This government has not undertaken and does not undertake to question the right of the government of Mexico in the exercise of its sovereign power to expropriate properties within its jurisdiction. This government has,

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Oil at the Capitols

Independent marketers ask Congress to prohibit marketers from engaging in any other branch of oil industry . . . Opponents have not testified

TRAINING their guns on integrated oil companies, representatives of independent marketers on March 31 urged a Senate subcommittee to enact the Gillette "divorce" bill, which would prohibit marketers from engaging in any other phase of the oil industry.

This development at Washington was the outstanding legislation affair of the week, but Governor Merriam signed a bill providing for drilling on California's state-owned tidelands.

Would divorce marketers

With Senators Pat McCarran (Nevada) and William E. Borah (Idaho), sitting as a subcommittee of the Senate Judiciary Committee, independent marketers last week urged enactment of the Gillette "divorce" bill, which would prevent marketers of petroleum products engaging in any other branch of that industry.

The purpose of the bill, it was explained by Senator Guy M. Gillette (Iowa), first witness, is to protect small business from the monopolistic attacks of its larger competitors.

Citing the so-called "Iowa Plan," by which major companies divested themselves of direct operation of their stations, which figured largely throughout the hearing, Senator Gillette declared it is necessary for congress to act since the independents can secure no other relief.

The Iowa Plan was explained in more detail by A. C. Gienapp, secretary of the Iowa Independent Oil Jobbers Association, who told the subcommittee the independent retailers are worse off than when the major companies were directly operating their stations.

Hadlick Testifies

Eight major companies, not including Standard Oil, had profits in 1937 of approximately $150,000,000, it was charged by Paul E. Hadlick, secretary of the National Oil Marketers Association, but while the major companies have made profits in their over-all operations they have lost money in marketing.

"We do not fear the competition of the major oil companies in marketing if it had to stand on its own base," Hadlick said. "Because of the consistent policy over these many years in operating their marketing department at a loss, the only way we can see out of our difficulty and the only way to prevent complete monopoly in the oil industry is the prompt passage of the legislation sponsored by Senator Gillette."

Precedents for the enactment of divorce legislation, he said, can be found in the utilities act and in the law prohibiting railroads from owning mining or timber organizations. Further, Hadlick said, the Department of Justice some years ago brought an anti-trust suit against the packers, as a result of which they were debarred from operating retail meat markets.

"But," he added, "it would take five years or more to get relief from an anti-trust suit, and that is why we are asking congress for immediate action."

Charging that the big companies were practicing many forms of unfair competition in their efforts to eliminate independents, H. F. Remington, Reading, Pa., station operator, told the subcommittee that stations worth $30,000 are being rented for $75 a month to former employes under the Iowa Plan, so that the majors may escape social security and chain store taxes, while comparable stations rented by independents cost $300 a month.

At the same time, Remington said, the major companies sell the large buyers at prices less than those charged the independent service stations, drawing from Senator McCarran the comment that apparently "they are willing to take a loss to put independents out of business."

The integrated companies would have to eliminate a lot of practices they are indulging in today, if the bill is passed, Remington said, but refused, in answer to questions by Senator McCarran, to admit that enactment of the legislation would result in increased prices to the consumer.

Prices Shouldn't Increase

"It is your view if this bill is enacted it will relieve the industry of a condition that is destructive of the independent dealer," the senator pointed out. "I am sure the opponents of the bill will contend that prices would be increased."

"I do not see any reason why the consumer should have to pay any more," Remington said. "I believe prices in the long run are set by the marginal operator."

Enactment of the bill will help the consuming states, and is the only way to stabilize all branches of the industry and prevent price manipulation, it was argued by Richard E. Breed of General Refining Company, Baltimore.

Breed contended that the integrated companies charge their marketing branch so high a price that it can make no profit, and so the consuming states in which outlets are located get no taxes, whereas the independents, charged even more than the company stations for product, are supposed to make a profit, on which they must pay taxes.

Asked regarding the application of the posted prices, the witness declared the "posted price is a price at which no one ever sells; the price is always under the posted price, especially since the Iowa Plan came into existence.

"The integrated companies claim the Iowa Plan is a divorce of marketing from other operations, but it is merely a subterfuge. They still control the stations; their leases sometimes have a five-day cancellation clause. That is not independent ownership.

"This bill will work if they cannot divert the profits to other branches."

Pointing to the "palatial" service stations which the major companies have erected, Breed declared marketing costs are "much too high," and charged the stations were built out of the profits from pipe line operations rather than from marketing. The pipe line profits are excessive, he said, and are used in manipulating marketing.

"They ought to be separated," Senator Borah remarked. "There is no doubt about that."

With no opponents of the legislation present at the hearing, Senator McCarran announced that if objectors to the measure express a wish to be heard they will be given an opportunity before the subcommittee prepares its report.

While the Senate group was holding hearings on the bill, the House Committee on Interstate and Foreign Commerce was considering the same measures, as introduced by Representative Fred Biermann (Iowa), and voted to refer it to the oil subcommittee, of which Representative Samuel B. Pettengill (Ind.), is acting head in the absence of Chairman William P. Cole, Jr.

Sign California's tideland drilling bill

Governor Frank F. Merriam signed the tideland oil bill passed by the 1938 special legislative session, March 24, applying to oil drilling on all state-owned tidelands. The new act, applying to all tidelands fields, creates a state lands commission of three members, with the lieutenant governor, the state controller, and the state finance director holding the posts. It provides that leases may be granted for upland drilling but does not specify the minimum royalty to be paid to the state by private drillers. The leases would be given the highest qualified bidder for 20-year terms with an option for extension.

Michigan investigators of gas suspend work

Michigan's natural gas fact-finding committee, appointed last year by Lieutenant Governor Leo J. Nowicki, has suspended operations because members could not determine "facts" upon which to agree. Estimates of the state's proved reserve were set by two members at 100 billion cubic feet, at 400 billion cubic feet by two other members, while the fifth member, C. A. Winder, chief engineer for the public utilities commission, maintains there is sufficient natural gas to meet the requirements of all Michigan.

William A. Thomas, Mt. Pleasant, representing the Oil & Gas Association of Michigan, and Dr. S. G. Bergquist, Michigan State College geologist, arrived at the 100 billion cubic feet figure which was described as sufficient to suppply cities within a reasonable distance of the gas fields for seven years, and for three years if Michigan natural gas was furnished Detroit in place of gas now supplied from Texas fields. The 400 billion cubic feet estimate was agreed to by Roy F. Ide, Detroit attorney representing land owners, and George B. Garner, of Six Lakes, representing independent producers.

Oil in the Courts

Anti-trust defendants argue for jury verdicts to be set aside . . . Texas hot oil confiscation law held legal . . . Slanted holes must regard property lines

ARGUMENTS on motions to set aside verdicts against 16 major oil companies and 30 individuals, for the most part officers of convicted companies, found guilty of conspiring to artificially raise and fix gasoline prices in 10 midwestern states through operation of buying pools in East Texas and Mid-Continent during 1935 and 1936, were heard at Madison, Wisconsin, last week.

Other legal developments of the week were the upholding of Texas' hot oil confiscation law, limitation of Oklahoma's prohibition of the use of vacuum lift to those areas where it would cause actual waste, a ruling that the federal government has title to the long fought over Section 16 at Elk Hills, and a decision ruling out invasion of neighboring oil property through slant hole drilling in California.

Madison trial

After hearing motions to set aside verdicts that convicted 16 major oil companies and 30 petroleum executives of violating the United States anti-trust laws, Federal Judge Patrick T. Stone announced he would take the motions under advisement, along with motions seeking a new trial. Meanwhile, sentence of the convicted companies and individuals is deferred pending decision on the motions. A maximum fine of $5000 faces the companies, and a similar fine or imprisonment up to one year, or both, may be levied upon the individual defendants. An appeal will be taken if defense motions are overruled.

Weymouth Kirkland, attorney for Standard Oil Company of Indiana, prefaced his argument with an announcement that he wished to "right a wrong" in connection with a senate committee interrogation of Robert H. Jackson, former assistant attorney general in charge of the anti-trust division of the department of justice. At the hearing, which took place since trial of the case was concluded at Madison in January, it was inferred that Madison was chosen by the prosecution because it was a "friendly" court. Jackson maintained he had no part in choosing Judge Stone's court, but that he considered it proper for the government to institute its anti-trust law prosecutions in courts it deemed friendly.

The Standard Oil attorney termed the inference that Madison was chosen for this reason to be "base slander, as shown by your honor's conduct in the case." He said that he believed the court considered the evidence "soberly" and "impartially," adding: "I think your honor's conduct of the case refutes any such ridiculous charge. . . . I want to assure you that no one in the case instigated or had anything to do with it."

The government's brief supporting the jury verdict against four oil company presidents—E. G. Seubert, Chicago, of Standard Oil Company of Indiana; Jacob France, Baltimore, of Mid-Continent Petroleum Corporation; Dan Moran, Ponca City, Oklahoma, of Continental Oil Company, and Henry M. Dawes, Chicago, of Pure Oil Company —which the government contended were involved as they were the active heads of their companies, was the target of Kirkland's attack. The government's brief held that other defendants, both corporate and individual, were specifically named in testimony during the extended trial, while evidence against the company presidents was largely circumstantial.

John L. McInerney, Chicago attorney, continued the argument on behalf of the Standard company and raised the question: "Did these defendants get a fair trial?" Declaring the jury was as good a one as could be obtained, he challenged the verdict reached "after only seven hours deliberation." The four-months task of the jury, he maintained, "was just a little too much," adding that a jury of trained men would have required 30 days to examine the testimony and evidence introduced during the trial before even opening discussion of it.

William P. Crawford, of government counsel, told the court that if the defendants did not receive a fair trial by the Wisconsin jury, "Then a fair trial never would be possible in a case of this kind." He maintained that the jury was "convinced" as to the guilt of the defendants as the case went along, that they "judged as they heard the evidence," and did not need more than seven hours to reach a formal verdict.

Dan Moody, former governor of Texas, arguing on behalf of Moran and Harry J. Kennedy, sales manager for Continental Oil Company, charged that the evidence was not sufficient to support a verdict of guilty against either of them. He declared that Moran's name was mentioned only twice during the entire case, and that Kennedy was connected with only one meeting at which distress gasoline purchases were discussed and that the government's witness, Walter Jacobi, was not even sure that he was present.

The government's contention that failure of a single company president to offer affirmative proof refuting the government's circumstantial evidence indicated guilt was characterized as a "strange new doctrine" by Charles I. Francis, Houston, attorney for Pure Oil Company. If the defendant companies' participation in distress gasoline purchases is an offense, it was "a violation of law never intended as such," he added.

Francis produced minutes of a two-day meeting of the Planning and Coordination Committee, set up under the N. R. A. code, held January 8 and 9, 1935. The government cited membership of Dawes and Seubert in the Planning and Coordination Committees as evidence that they know of the plan of major companies to purchase distress gasoline, the plan having been discussed at the meeting in connection with another meeting held in Chicago several days earlier. The minutes showed that neither Dawes nor Seubert were present at the meeting.

The Pure Oil attorney, over the objection of the prosecution, gained receipt of the minutes and announced his desire to use them to support a motion for a new trial for the Pure Oil Company president. Judge Stone, remarking "What this court wants is the truth," took the minutes under consideration.

In a separate brief filed last week, Judge Stone was asked to discharge three convicted officials of Tide Water Associated Oil Company "to avoid a grave miscarriage of justice." The company was dropped from the list of corporate defendants on order of the court before the case went to the jury and the brief argued that the officials had no part in the conspiracy but were "caught in a dragnet." The officials are Edward L. Shea, New York, Vice President, Noel Robinson, New York, and J. W. Warner, Tulsa. "The explanation of the conviction of these defendants is very simple," said the brief. "The jury was utterly unable, after a long trial with thousands of pages of testimony and exhibits, to consider the evidence and the law as laid down by the court in respect to these defendants as distinguished from other defendants whose cases were materially different."

Uphold Texas hot oil confiscation law

The Third Court of Civil Appeals at Austin, in an opinion handed down last week specifically, upheld the hot oil confiscation law. The opinion applied to illegal oil produced before or after the effective date of the confiscation statute. The decision was rendered in the case of Skipper and Bivens and involved about 10,000 barrels of oil. This was the first direct ruling holding on the points at issue.

The operators contended that since the oil was in steel storage and was itself useful, it could not be a nuisance or could not be made so by legislative action. They contended also that since the oil was produced prior to the effective date of the law, the statute was invalid because it would be retroactive.

The court found, however, that the legislature has the power to determine what constitutes a nuisance and that "while the legislature may not transform a useful, non-harmful article into a nuisance, it may lawfully declare anything a nuisance and subject it to confiscation which is produced or made use of in violation of its law . . ."

"Confiscation is merely an additional penalty and consequent additional deterrent to the violation of law . . ." in this instance, the court held.

"It is a matter of common knowledge that in the earlier years of production in East Texas, conservation laws were flagrantly violated and the state was faced with the problems of of enforcing its laws and disposing of

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Allowable Picture

Carter Oil reduces its purchases . . . Pennsylvania pipe lines curtail takings . . . Improvement shown in California brightens outlook . . . Oklahoma cuts

WHILE there was further indication last week that output of leading producing states in April would be below the suggested quota of the Bureau of Mines, pipe line purchasers announced reductions in Pennsylvania and the Mid-Continent.

Carter cuts purchases

Carter Oil Company will reduce purchases of Oklahoma crude oil 20 percent, effective April 10. The announcement, made April 1, followed setting of Oklahoma allowable at 475,000 barrels daily. Reduction applies to all fields where the company purchases except Tussey and Wildcat Jim.

In Kansas, Stanolind Crude Oil Purchasing Company and Phillips Petroleum Company are taking but 75 percent of output of leases they serve. Sinclair Prairie Crude Oil Marketing Company is taking 85 percent in Kansas.

Early this year Sinclair Prairie Crude Oil Marketing Company announced reduction of 10 percent in purchases from Oklahoma leases.

A statement by Carter Oil Company was:

"It is a matter of general knowledge within the industry that beginning last fall our market outlet substantially was being reduced from month to month. This condition has grown so critical that now our market outlet is about 50 percent of normal. Fully appreciating the hardships that would be visited upon our customers by a substantial reduction in our takings, we, during the months preceding this notice, have made every effort to divert sufficient connections to other purchasers to enable us to take the corporation commission allowables from the remaining properties we serve.

"This effort failed. March 8, 1938, we reduced our takings from four areas in southern Oklahoma, hoping that in the meanwhile there would be such improvement in conditions that a general reduction in our takings could be averted. That improvement has not materialized, and despite our wishes, this announcement must be made. To demonstrate the fairness of our attitude in this regard, we state that about 50 percent of the production that will be affected by this notice is owned by us."

Conditions under which the reduction will be put in effect provide that full production will be taken from all leases where the per well average is 10 barrels per day or less.

Pennsylvania lines reduce purchases

Further indication of Pennsylvania's unsettled crude market situation was given in the announcement last week that, effective April 1, Bradford Transit Company would run crude from producers' tanks only to the amount buyers will agree to accept for immediate shipment. The company is the largest gatherer in the Bradford and Allegany fields, source of approximately 70 percent of the current supply of Pennsylvania grade crude.

The action followed announcements by Quaker State Oil Refining Corporation and the Bradford Oil Refining Company that they would accept reduced amounts of crude beginning April 1. The Quaker State company, which specified that 85 percent of the supply accepted in January would be taken in April, declared the action was taken to prevent further price cuts on Pennsylvania grade crude and was intended to reduce oil production. Four price cuts since last fall have brought present quotations to a point approximately 30 percent lower than they were a year ago.

Following is the text of the Bradford Transit Company's announcement:

"Bradford Transit Company has notified the crude buyers served by its system that, effective April 1, 1938, it will run crude from producers' tanks only to the total amount that each of the buyers will agree to accept for immediate shipment. This step has become essential to the slower movement of crude under the existing economic conditions. It is believed that the company has maintained its standard of service in the Bradford and Allegany districts during recent months of increasing congestion of crude supply. No immediate relief is now apparent and it is considered advisable to remind the producers that in order to render satisfactory service to all customers it is essential that sufficient vacant room remain in the system to readily receive crude from the field and to move it to destination promptly."

California Improves

The April crude quota for California was set at 698,700 barrels daily by the Central Committee of California Oil Producers last week, which adheres to the recommendation of the U. S. Bureau of Mines. California has many months been exceeding its established allowable, however, the committee declares the figure is not to be exceeded in April. The actual figure that will be allocated to all wells is 653,498 barrels daily. The difference between that and the quota will take care of new flush production. On March 28, the state's production was 698,419 barrels, the lowest figure recorded since December. However, despite present improvements in the oil curtailment situation, figures show that approximately 200,000 barrels went into storage daily during February.

Beginning April 1, all operators in the Lakeview oil field shut down for five days as a means of aiding the statewide oil curtailment program. This agreement was entered into recently at the suggestion of the Central Committee of California Oil Producers. Standard Oil Company and The Texas Company choked in their production in the north end of the Lakeview field, accounting for a reduction of approximately 6000 barrels daily.

As of March 27, Lakeview produced 10,436 barrels of oil, as against a previous high of 16,600 barrels daily. The voluntary shut down entered into is similar to a production holiday tried a year ago in the same field and which met with considerable success.

Since March 15, California producers have voluntarily reduced their output some 50,000 barrels daily. According to figures of the oil umpire, Wilmington-Long Beach field produced 92,000 barrels on March 27, which represents a substantial decline over previous figures.

Oklahoma to use same allowable

Oklahoma Corporation Commission March 31 instructed its conservation office, W. J. Armstrong, to write proration order to give the state an April allowable of 475,000 barrels, identical with March. Along with this the commission gave instructions to reduce allowables in some prorated fields to assure output holding to that figure. March production was close to 500,000 barrels daily.

Indications are the reductions will be made in all prorated fields except the Oklahoma City Wilcox zone. Producers there offered strenuous objection to a cut. Its March allowable was 85,699 barrels daily.

Producers at Fitts sought to avoid any further reduction. The final order will be signed after the conservation department has made the necessary adjustments.

Refinery control seen as industry's need

The production branch of the oil industry has developed a sound program for the prevention of waste and for balancing supply with demand, but the refining industry has been unable to direct its own course and is largely responsible for the present excessive stocks above ground, members of the Bradford District Producers Association were told March 30 by Russell B. Brown, general counsel of the Independent Petroleum Association of America.

"The situation in which we find ourselves today in regard to refineries is much like that which confronted the code authorities in 1934-35," Brown declared.

At the same time, the refiners today are suffering from the results of efforts then taken to meet the situation and the Madison cases which were based on the plans then developed. All this has caused confusion which has seriously affected the refining industry, he pointed out.

"The difficulty does not seem to lie in the overproduction of gasoline as an incident to the required production of fuel oil," he continued. "The difficulty seems to be that the refiners are producing too much of both. If the large refiners continue to produce sufficient gasoline to meet all the demands of the market which they have long

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Recession Makes Caution Advisable

Business decline has caused less favorable trends of oil consumption, giving rise to need for strict control of crude production and refinery activity

By L. J. LOGAN,
Associate Editor

WATCHING the weather house intently during the past few weeks, the oil industry, as well as all other business, has been able to see only the old witch, with her umbrella—and no signs of the children, that had been peeping out the door earlier in the year, as if about to come out.

At least for the immediate future, definitely stormy conditions are indicated, and a lifting of the clouds is not in prospect.

Further Cooperation Needed

Oil men are characteristically optimistic, having in their blood at least some of the spirit of the traditional wildcatter. And through the recent months of disturbed general conditions, they have maintained all possible cheerfulness, which has helped to preserve the exceptional stability that the industry so far has experienced.

In view of even less favorable trends in the past several weeks, however, there is now a more insistent need than heretofore for keeping up courage, and also a need for greater cooperation in preserving sound conditions in the industry.

More Danger Signs

Accordingly, it probably is more urgent now than at any time before in the present business decline that crude production and refinery operations be held in balance with market demand.

For threats of a renewed contraction of business have indicated that there may be further impairment of oil demand, and increased pressure on the industry's markets, prices, and earning power.

Fortunately, however, the industry and the oil conservation officials oppear to be well aware of the dangers lurking ahead, as evidenced by the adoption of strict crude production allowables for April in most of the leading producing states, resignation of producers to such allowables, and the more moderate operations lately at the refineries.

So far, the output of crude oil has been held down effectively, and in recent weeks better control of refinery activity has prevailed.

Markets Remain Steady

By virtue of the consistent balancing of crude production with demand, the crude markets have held up well, most prices having been maintained unimpaired throughout the business slump.

And the recent curtailment of refinery output, into a better relation to consumption, already has had a strengthening effect on the markets for refined products. The gasoline market, in particular, has been bolstered by the more moderate refinery output, and prices are holding steady, following recent advances. (The increases apparently reflected better statistical factors, as well as the recent inauguration of higher freight rates.)

However, the gasoline prices still are substantially lower than last year's levels, making profit possibilities proportionately smaller.

Consequently, there is still a maladjustment of the gasoline prices in relation to crude oil prices, which have been generally maintained.

And the depressed gasoline prices continue as a drag on the crude markets, keeping the latter on the defensive.

The industry has clung, so far, to the hope that the markets eventually could be readjusted by bringing gasoline prices back up into the former satisfactory relation to the crude prices, rather than by revising the crude prices down in line with the lowered gasoline prices.

This hope has been kept alive by the success in holding crude oil production about in balance with demand, through exceptionally strict allowables. And it has been bolstered in recent weeks by the achievement, finally, of a similar effective balancing of the supply of refined products with demand.

April Allowables Strict

For at least another month, crude oil production is scheduled to be held down with exceptional strictness. The six leading producing

State Allowables for April Conform Closely with Bureau of Mines Estimates of Demand

(Barrels Daily)

STATE	Bureau of Mines Recommendation	State Allowable Beginning of Month	Excess or Deficiency of State Allowable	Percent Excess or Deficiency
California	698,700	*698,700	.....	.....
Kansas	173,000	173,000	.....	.....
Louisiana	239,800	252,275	+12,475	+5.2
New Mexico	106,000	103,000	— 3,000	—2.7
Oklahoma	526,500	475,000	—51,500	—9.9
Texas	1,329,800	†1,318,437	—11,363	—0.8
Total six States	3,073,800	3,020,412	—53,388	—1.7

* Recommendation of Central Committee of California Oil Producers.
† Average daily production permitted for 7 day week as a whole; actual allowable higher, but fields shut-in on Sundays.

states, which yield about 92 per cent of all United States production, have adopted April allowables that are, in the aggregate, below the indicated market demand, as estimated by the Bureau of Mines. The combined allowables are 53,388 barrels a day, or 1.7 per cent, less than the indicated demand.

The state allowables regularly are closely observed in all of these six leading states except California, where there is no state proration, and where actual production has been running around 40,000 barrels a day above the limits recommended by the Bureau of Mines and accepted in the producers' voluntary proration program.

Effective Control Indicated

It is indicated, therefore, that for the country as a whole, crude oil production again will be in virtual balance with demand, as it has been consistently since the middle of February.

The evidence that crude production actually has been held in balance with market requirements is found in the statistics on crude stocks. The crude oil storage in the United States totaled 306,380,000 barrels on March 19, or about a million barrels more than at the middle of February.

As indicated in an accompanying table, three of the six leading producing states, Oklahoma, Texas, and New Mexico, have adopted April allowables lower than the Bureau of Mines estimates of demand, taking into consideration the fact that Texas fields again have been ordered closed down on Sundays. Kansas and California adopted exactly the Bureau of Mines recommendations. Louisiana was the only state among the six leaders to adopt an allowable above the bureau suggestion, having exceeded the recommendation 12,475 barrels daily, or 5.2 per cent.

California Prices Endangered

It is significant that while California has been experiencing the least effective control of crude production, it also has been disturbed lately by some fears for the safety of the long established crude oil prices. It is being pointed out that the heavy production now constitutes a definite threat to the whole price structure on the Pacific Coast.

Despite exceptionally large shipments to Japan, substantial quantities of oil are going into storage in California.

Demand Less Brisk

The definite need for a continuation of strict control of crude oil production and refinery operations throughout the United States is attested by much evidence, including recent trends of petroleum consumption, indicated demand in the immediate future, and conditions in the oil fields.

The latest available statistics on consumption have shown further leveling off of the formerly rising trends.

In January, 1938, total demand for United States petroleum was 6/10 of 1 per cent smaller than in January, 1937, and the decrease would have been larger except for exceptionally good export business. The total domestic demand was 3.3 per cent smaller in January, 1938, than in January, 1937.

The United States consumption of gasoline, kerosene, wax, coke, and asphalt was slightly larger in January, 1938, than in January, 1937. But the use of fuel oil, lubricants, and road oil was smaller.

The January figures on consumption were even less favorable than the Bureau of Mines had expected when it made its usual conservative forecast for that month. The bureau had estimated, for instance, that the total demand for domestic crude would be 6.2 per cent larger than in January last year, whereas it actually proved slightly smaller. And the bureau predicted that domestic gasoline demand would be 8.3 per cent larger than one year previously, whereas it actually proved only 4.4 per cent larger.

April Forecast of Demand

The Bureau of Mines forecasts for February and March, 1938, indicated the probability of only slightly larger demand than in those months last year.

And the similar forecast recently made for April, 1938, reflected the bureau's expectations of continued unfavorable trends of oil demand.

The forecast indicated that the total demand for domestic crude in April, 1938, would be only 2.3 per cent larger than in April, 1937. It allowed for a total gasoline demand 3.5 per cent larger than in the corresponding month last year, anticipating that exports would be 18.4 per cent higher and that domestic demand would be up 2.5 per cent.

Crude Market on Defensive

In conditions in the oil fields, as well as in the statistics on demand, there is evidence that the petroleum industry has been appreciably affected by the business decline, and that there is currently a need for strict regulation of operations, if supply is to be held in balance with market demand.

The action last week of Pennsylvania pipe line companies in reducing their purchases of crude oil gave evidence of lingering unsteadiness of the market in that area and the need for production curtailment. The pipe line proration was employed, it was explained, in an effort to forestall further lowering of prices.

The unsteadiness of the California markets, due to overproduction of crude, already has been mentioned above.

In some districts of the Mid-Continent, too, the crude markets continue relatively weak.

Relatively Small Gains Over Year Ago Shown in Recent Monthly Forecasts of Demand by Bureau of Mines

(Barrels of 42 U. S. Gallons)

MONTH	Total Demand for Domestic Crude	MOTOR FUEL DEMAND		
		Domestic	Export	Total
January—				
January, 1938, forecast	105,610,000	36,500,000	3,800,000	40,300,000
January, 1937, actual	99,442,000	33,696,000	2,978,000	36,674,000
Change from year ago	+6.2%	+8.3%	+27.6%	+9.9%
February—				
February, 1938, forecast	96,270,000	32,550,000	3,200,000	35,750,000
February, 1937, actual	89,817,000	32,000,000	2,640,000	34,640,000
Change from year ago	+7.2%	+1.7%	+21.2%	+3.2%
March—				
March, 1938, forecast	105,150,000	40,680,000	3,600,000	44,280,000
March, 1937, actual	99,738,000	40,561,000	2,426,000	42,987,000
Change from year ago	+5.4%	+0.25%	+48.3%	+3.0%
April—				
April, 1938, forecast	100,850,000	44,500,000	3,300,000	47,800,000
April, 1937, actual	98,565,000	43,409,000	2,787,000	46,196,000
Change from year ago	+2.3%	+2.5%	+18.4%	+3.5%

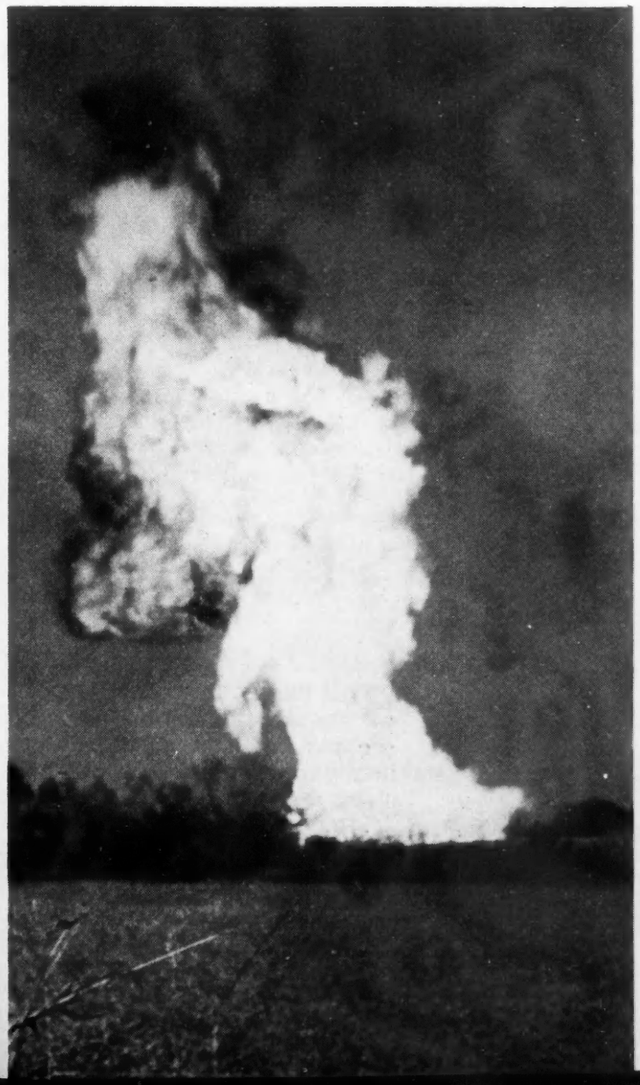
A PICTORIAL STORY OF

How a Burning Gas Well Was Extinguished

ON January 8, 1938, D. Davenport's Swallow 1-A, 7900-foot producer in the La Blanca field, Hidalgo County, Southwest Texas, blew out, caught fire and cratered. This caused a nearby junked hole to also blow out and crater. The result was one of the worst oil well fires in history. Both wells became engulfed in a common crater, and burned until February 25.

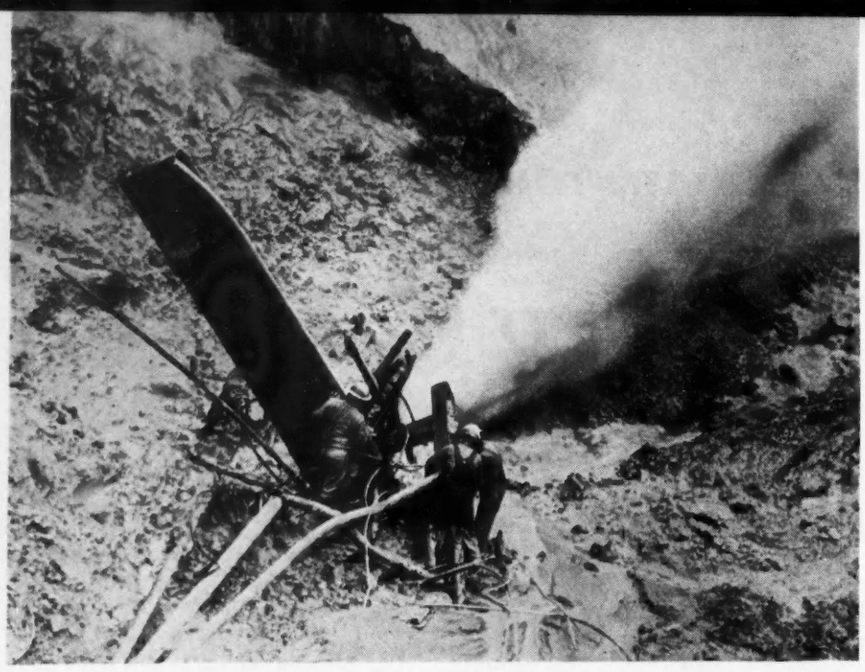
The accompanying photographs, taken by Harry Pederson of McAllen, Texas, present the first complete set of still camera pictures of the task and difficulties of extinguishing a major well fire. They show the work of M. M. Kinley's crews, who arrived on the scene February 23 and succeeded in extinguishing the fire on February 25, and in capping it on March 8.

1 The appearance of the well shortly after it caught fire on January 8, 1938, is shown below. It was estimated the well was making 100,000,000 cubic feet of gas and some oil, at a closed-in pressure of 2200 pounds.



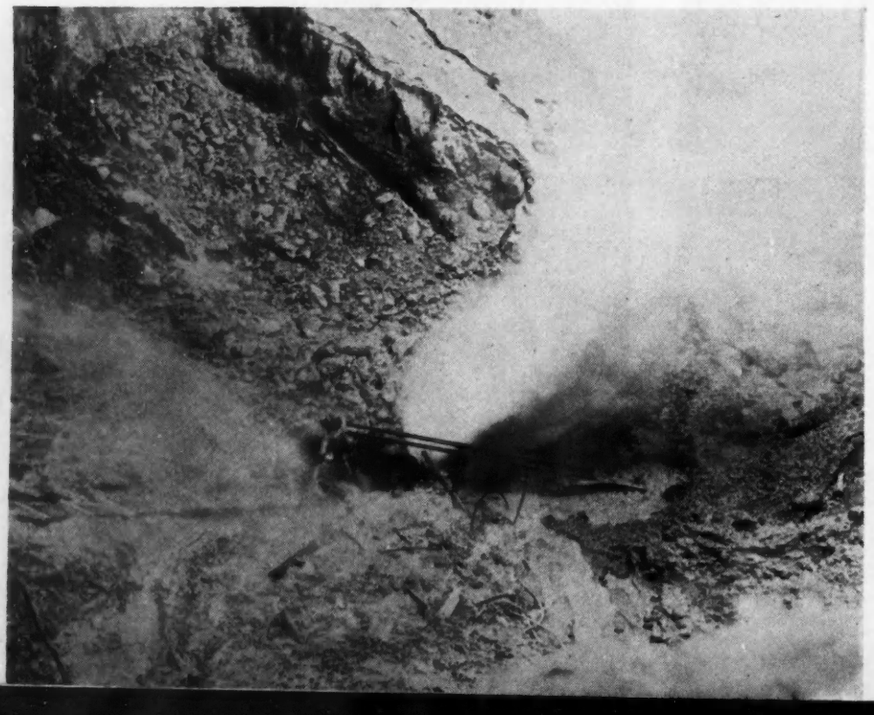
2 This is the way the well appeared on February 22 when M. M. Kinley Company contracted to start extinguishing the fire and capping the wild flow. At this time the crater was 56 feet deep, but before the well was controlled it had been extended to a depth of 70 feet below the surface.

[*Continued on page 20*]



3 The first move was to start clearing away the steel debris, as shown to the left. Until this was accomplished there would be no advantage in extinguishing the fire, as the well would merely ignite again from the heat. The fire fighters went down into the crater to the very mouth of the well. They attached cables to various pieces of machinery, and tractors pulled them away from the fire. It isn't very pleasant work.

4 Having cleared away the wreckage, it was time to shoot out the fire. Consequently, 40 quarts of explosives were placed in containers. In the picture to the right, the shot has been placed in a wheelbarrow and is on its way down the sides of the crater to the well. The wires extending from the can carry the electrical current that sets off the shot.

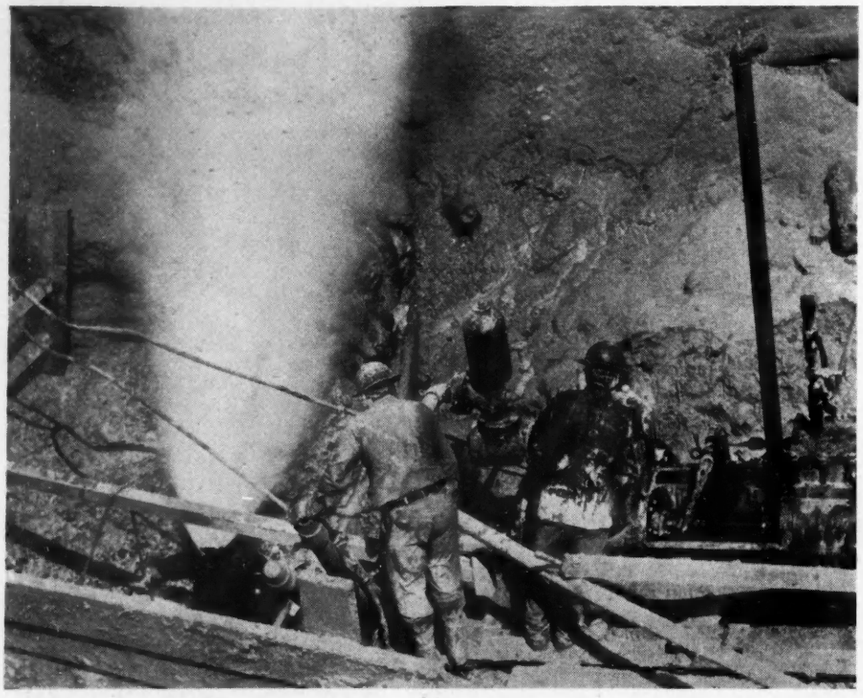


5 At the mouth of the well with the shot. Here the workmen are placing it in position. When finally ready, the can of explosives rested upon the two pipes bridging the well. These can be seen in the photograph to the left.

6 Above is one of the most remarkable pictures of an oil well fire being extinguished. The 40-quart shot has been set off by electricity. Oil fires are snuffed out by this method by the concussion separating the flame and fuel long enough for the fire to burn out. In this photo the last bit of flame is hanging in the sky at the right. This picture was (naturally) taken from the surface level and shows the force of the shot. The white smoke lying along the ground is the concussion, and the ground in the foreground is still shaking from the force. This was on February 25.

7 A minute after the above picture, the well looked like the view to the right. It is blowing water and mud out of the hole, but the 40 quarts of explosives have successfully put out the flames. Now comes the job of controlling the flow.

[*Continued on page 22*]



8 The common procedure is to swing an assembled manifold over the well and attach it to the casing. In this instance there was so much water in the crater it was necessary to install a pump to remove the fluid. This is being done in the picture above.

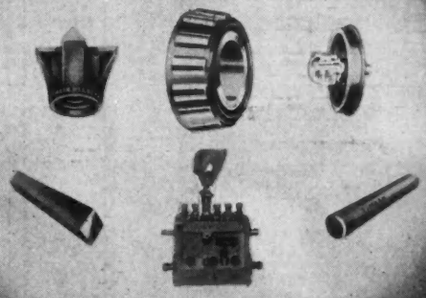
9 At the bottom of the crater, it was found that the seven-inch casing projected at a decided angle, which greatly increased the difficulty of capping the well. Moreover, when the derrick collapsed the top of the casing was broken off and badly bent. In the picture at the left below workmen are using calipers to determine its roundness.

10 Having found the casing in perfect condition a short distance below its topmost part, it was cut at that point. The picture below shows that operation. Care must be taken, as the smallest spark would ignite the gas again.

[*Continued on page 24*]

"TIMKEN"

TRADE MARK REG. U.S. PAT. OFF.



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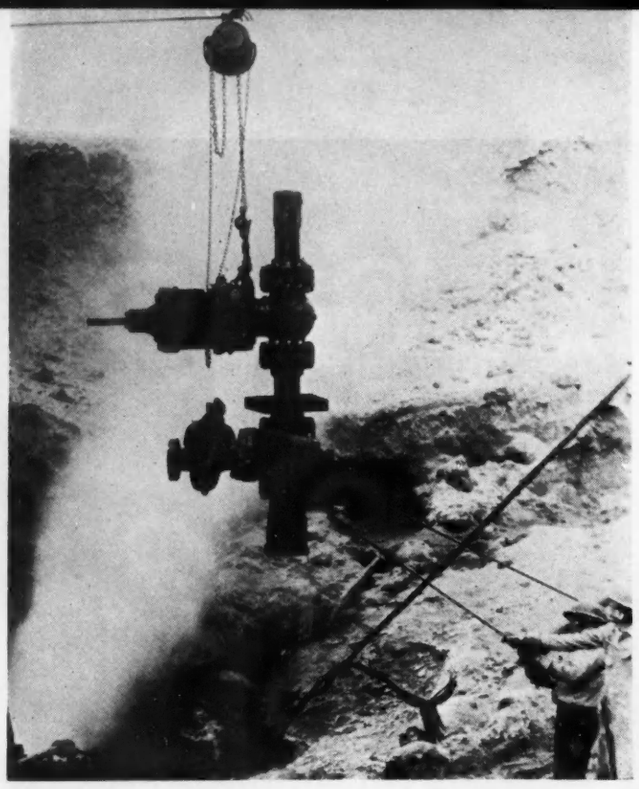
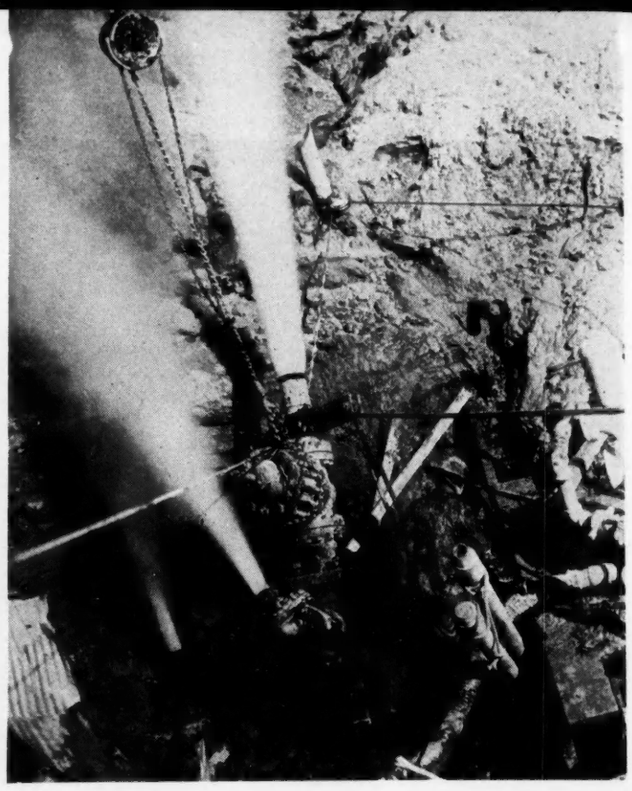
THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO



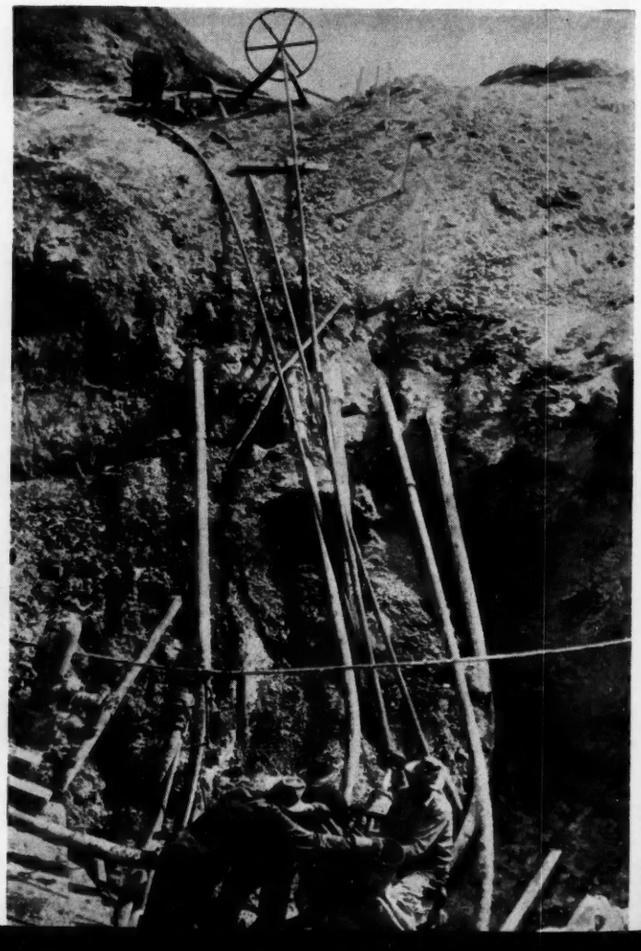
11 Having prepared the casing for connecting an assembled manifold, the latter is swung out over the crater so it can be spotted carefully over the seven-inch flow string.



13 Success! The manifold has been snugly tied down and the casing head packed. It is ready to produce in a normal fashion, but to relieve the pressure the wild flow is still being permitted to continue until flow lines can be installed.

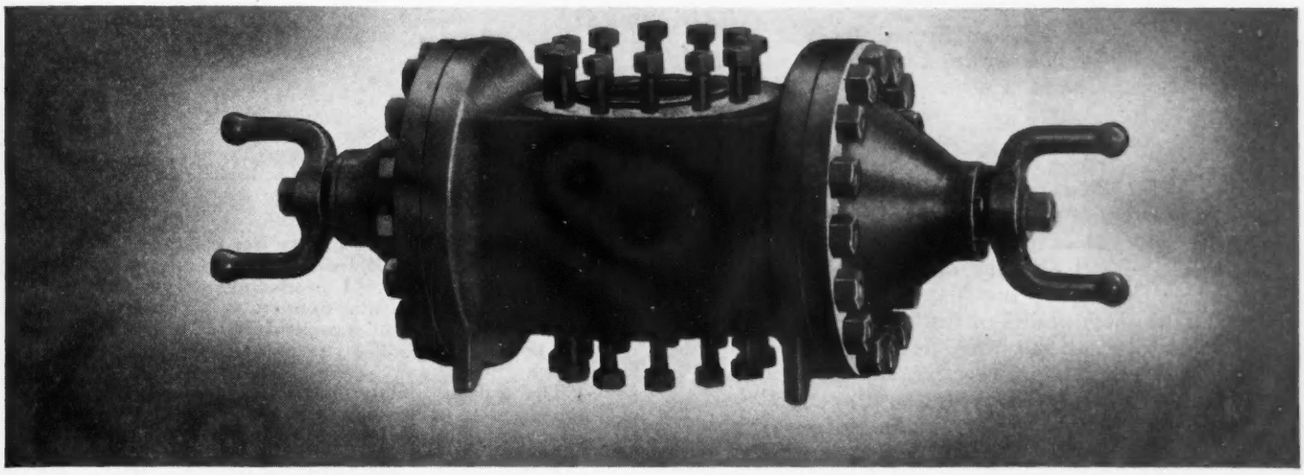
12 A "ticklish" moment, as the manifold is lowered to the level of the seven-inch casing. Projecting a short distance above the water in the lower part of the picture is the casing. By pushing, pulling and tugging the manifold must be in perfect position. Careful there, don't let it bump against another piece of steel — or goodnight all.

14 Four-inch flow lines have been connected and the job is over. The output of the well flows at an angle up the side of the crater to a series of large separators. Meanwhile, the control wheel for the master valve has been set up on the surface. This is the way the well appears today, with the exception additional flow lines have been installed.



INCREASE THE SAFETY ...AND CUT THE COST

...OF CONTROLLED PRESSURE DRILLING AND TUBING WELLS UNDER PRESSURE



New devices of Nickel alloy steel replace crude and unsafe tools formerly employed

Developed specifically for the "controlled pressure completion" method of oil drilling, and for tubing wells under pressure, is this Guiberson type "D" oil saver. The housing, designed for a working pressure of 1500 lbs., is tested to 3000 lbs. hydrostatic pressure. Pressure-tightness, strength and toughness are imparted to both housing and end plates by the use of a cast Nickel-chromium steel corresponding to SAE 3135. A separate drilling head or rotating blow-out preventer may be installed above the oil saver by means of a quick-changing union.

• • •

Through the use of these new Guiberson types "D" and "E" drilling heads, the completion of wells is made possible without danger of blow-outs. The flexible packing medium in these devices packs off around the standard square kelly while drilling, and when the latter is removed this same packing medium packs off around the drill pipe and its collars, thus insuring a leak-proof and safe arrangement when going in or coming out of the hole with the drill pipe.

Subjected to the same tests as the type "D" oil saver and made of the same Nickel alloy steel (SAE 3135) these drilling heads are of simple, sturdy construction, which further insures durability and long life.

ALLOY NICKEL STEELS

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N. Y.

The Permian Basin

AND ITS DRILLING AND PRODUCTION PROBLEMS

By W. T. DOHERTY
West Texas Division Superintendent,
Humble Oil & Refining Company,
Midland, Texas

THE Permian Basin proper has produced over a billion barrels of oil from 10,310 wells on January 1, 1938, with 9,411 producing wells as of that date and has twice that amount of oil in reserves. The daily production is around 300,000 barrels per day and there are 376 rigs actually drilling at this time.

The drilling and production problems are many and peculiar to this area. All of the drilling is done with rock bits and the type of reservoirs include combined active water and gas drive, gas drive, and those requiring artificial lift at discovery. The area demands a position among the most prolific oil reserves of the world.

**This paper was presented at the
Spring Meeting of the Southwestern District
A.P.I. Division of Production,
Fort Worth, Texas,
March 24-25, 1938.**

The statements and opinions expressed herein are those of the author, and should not be construed as an official action or opinion of the Institute or of this publication.

THE West Texas Permian Basin is a roughly ovate feature some 800 miles long and approximately 300 miles wide. It extends from Kansas on the north to Central Terrell County on the south, and from Tom Green County on the east to the Guadalupe and Sierra Diablo Mountains of Culberson County on the west. This discussion, however, is limited to that portion of the basin south of the Amarillo fold, and is specifically concerned with the south-central part of that area. This southern part of the feature is divided into two portions by the Central Basin Platform, a long, comparatively narrow platform-like feature which extends from the Hobbs-Monument producing area of New Mexico to the Yates field in Pecos County. The Delaware Basin, the center of which is in Reeves County, lies west of this platform and the main or Midland Basin is situated to the east of the feature. (See Figures 1 and 2.)

To date, the greater part of the oil produced has been obtained from the upper few hundred feet of the Permian limestone on local folds situated on the margins of the Central Basin Platform. The Ward and Winkler fields and the Jal, Cooper, Eunice, and Monument fields of Southeastern Lea County furnish almost a continuous belt of production along the western edge of this platform. Most of this production is from cavernous dolomite, the porosity probably due to solution cavities. However, parallel and adjacent on the east to this line of producing structures, a large belt of sand production is now being developed. Part of the Ward production, theHalley, Emperor, and Kermit fields in Winkler County, and the Mattix, Skelly, Penrose, and Hardy fields of Lea County are in the sand belt. The sandstone is in the top of the dolomite section and grades imperceptibly into the pure dolomite to the west. The producing area is sometimes continuous from the sand belt westward to the dolomite fields. The Yates, McCamey, University-McElroy, Waddell, Judkins, Foster, North Cowden, Fuhrman-Deeprock, and Means fields are located along the eastern edge of the platform. The Seminole field in central Gaines County and the newly discovered Wasson area in northwest Gaines and southwest Yoakum counties are possibly on the northern continuation of the east rim of the platform. Porosity in the fields along the eastern margin of the platform is mostly in cavernous dolomite, although in the northern fields the pay is often in granular to crystalline dolomite. The platform averages from 30 to 50 miles in width, and is tilted gently to the north and northeast.

The Tubb area in central Crane County is about in the center of the south portion of the platform. The pay here is some 1700 feet below the top of the dolomite. This is the only production of any real consequence which occurs more than 100 to 600 feet below the top of this formation. The Cummins-Goldsmith producing fold in northwestern Ector County although associated with the eastern flank of the platform is removed from the rim and may be considered an interior fold. It is in excess of 12 miles in length, 2 to 4 miles in width, and should produce more than 150,000,000 barrels of oil from around 20,000 acres. In the northern part of the active area, flowing wells ranging in initial productions from 200 to 500 barrels each are being secured in the southeastern part of Cochran and the southwestern portion of Hockley counties. This is a new area about which very little is known; however, the 8 or 10 wells so far completed indicate the possible presence of a productive area which may partially cover an area 7 or 8 miles in width and 20 or 30 miles in length. The Howard-Glasscock and Big Lake fields are located on highs in the middle of the Eastern basin and are not connected with the platform. In the Wheat and Kyle fields of Loving County the production is from the Delaware sands in the Delaware Basin.

Ordovician Production

The Big Lake field furnishes the first Ordovician production in West Texas. The pay occurs in the top

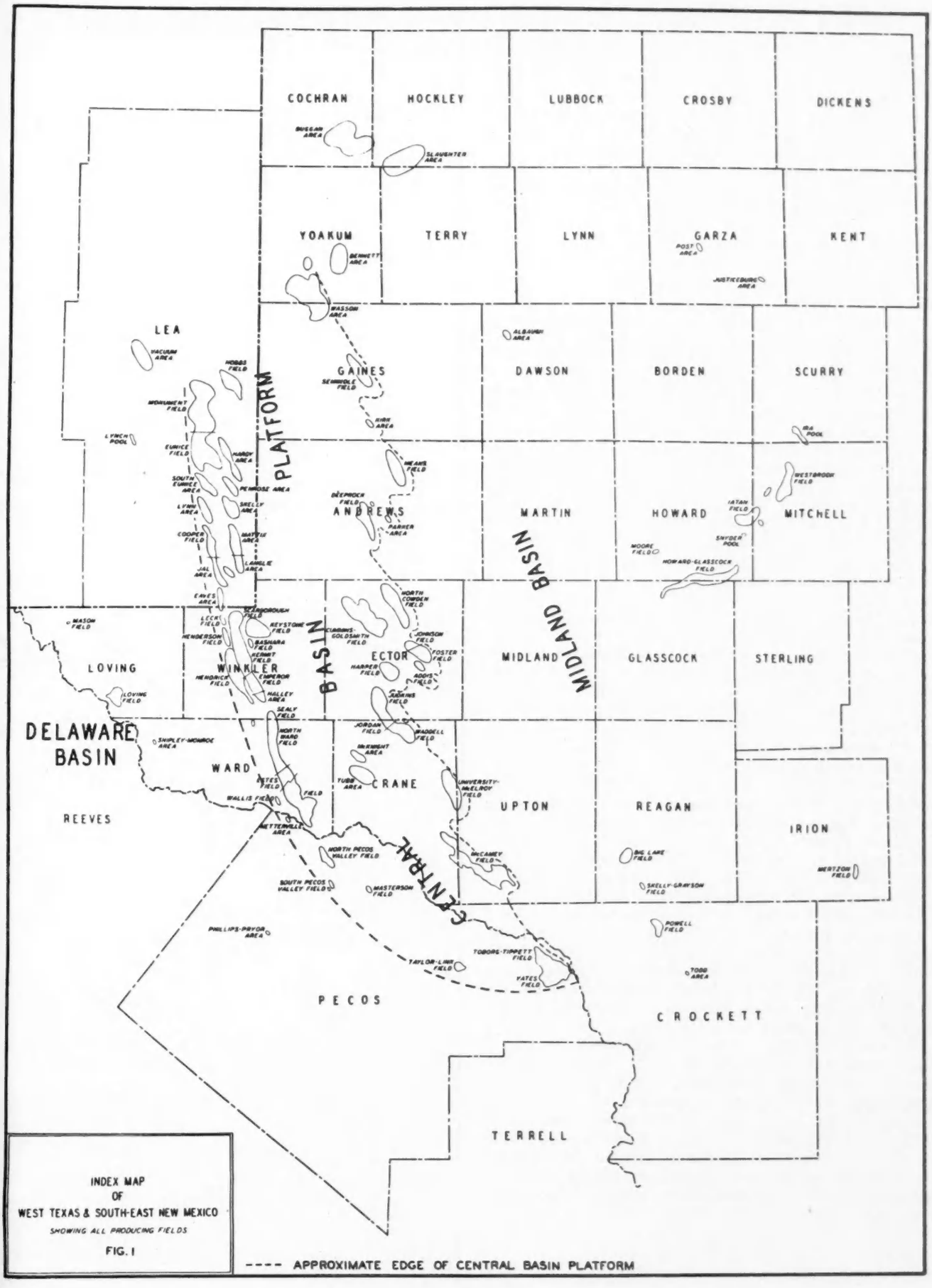

COCHRAN
HOCKLEY
LUBBOCK
CROSBY
DICKENS
YOAKUM
TERRY
LYNN
GARZA
KENT
LEA
GAINES
DAWSON
BORDEN
SCURRY
ANDREWS
MARTIN
HOWARD
MITCHELL
LOVING
WINKLER
ECTOR
MIDLAND
GLASSCOCK
STERLING
DELAWARE BASIN
WARD
CRANE
UPTON
REAGAN
IRION
REEVES
PECOS
CROCKETT
TERRELL
CENTRAL BASIN PLATFORM
MIDLAND BASIN
INDEX MAP
OF
WEST TEXAS & SOUTH-EAST NEW MEXICO
SHOWING ALL PRODUCING FIELDS
FIG. 1
---- APPROXIMATE EDGE OF CENTRAL BASIN PLATFORM

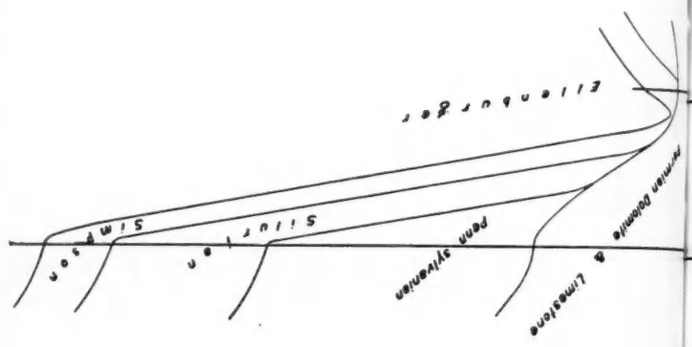
FIGURE 1

of the Ellenberger at around 8500 feet in depth. Some 24 wells were drilled to this horizon, and they have produced about 25,000,000 barrels of oil. The Big Lake deep structure involved approximately 1600 acres of land in contrast with an area of some 3500 acres of shallow Permian pay at 3000 feet in depth. The only other commercial Ordovician production so far developed in West Texas is in the Tubb area in western Crane County where the Ordovician is encountered at around 6000 feet in depth, and two tests have indicated that wells with initial productions as high as 5,000 to 10,000 barrels per day may be obtained. Sufficient drilling has not yet been done to define fully this deep producing area, although it is now believed that at its north end the production will be confined to an area only about one-fourth of a mile in width. It may be several miles in length.

The depth to the objective in each West Texas field varies according to its geographic location. Wells in the Yates pool at the south end of the platform are completed at around 1000 to 1400 feet, and those in Andrews and Gaines counties to the north are completed at depths ranging from 4500 to 5000 feet. The Ector County fields are about midway along the eastern edge of the platform from north to south and probably have a depth to the pay zone which approximates an average for the territory. A typical section penetrated by one of these wells consists of from a few feet to possibly 100 or 200 feet of windblown sands and surface fill followed by some 1300 to 1500 feet of Triassic and Permian red sandstones and red shales. This, in turn, is underlain by 1000 to 1200 feet of polyhalite bearing salt. This section contains more than 50 percent sodium chloride but carries some layers of polyhalite and anhydrite. This material is underlain by the so-called anhydrite section which is approximately 1200 feet in thickness. About 100 feet below the top of this horizon, a wide spread sand zone carrying typical, identifiable, large, rounded frosted quartz grains occurs. This has been called the Yates sand and is a continuous stratigraphic horizon which is used throughout most of the territory for structural maps. The lower portion of the anhydrite contains interbedded layers of dolomite which are often referred to as the "Brown Lime." In Ector County, this "Brown Lime" section has a thickness of around 300 feet, but varies greatly from one area to another. The base of the anhydrite is underlain by the continuous lime. In this area the pay is from 200 to 400 feet below the top of the lime.

Since the discovery of oil in West Texas in 1921, the Permian Basin has produced in excess of one billion barrels of oil and it is estimated that about twice as much oil will be produced in the future as has already been produced, thus the ultimate production should exceed three billion barrels.

At the present time there are 9411 producing wells located on 2150 leases in 92 pools in the Permian Basin. These wells now have a total allowable of something near 300,000 barrels per day, which is equivalent to about 110,000,000 barrels per year. There are 342 companies engaged in the production of this oil. The Permian Basin has roughly a little over 10 percent of the wells, 22 percent of the daily allowable, and 23 percent of the proven reserves of the State of Texas.[1]

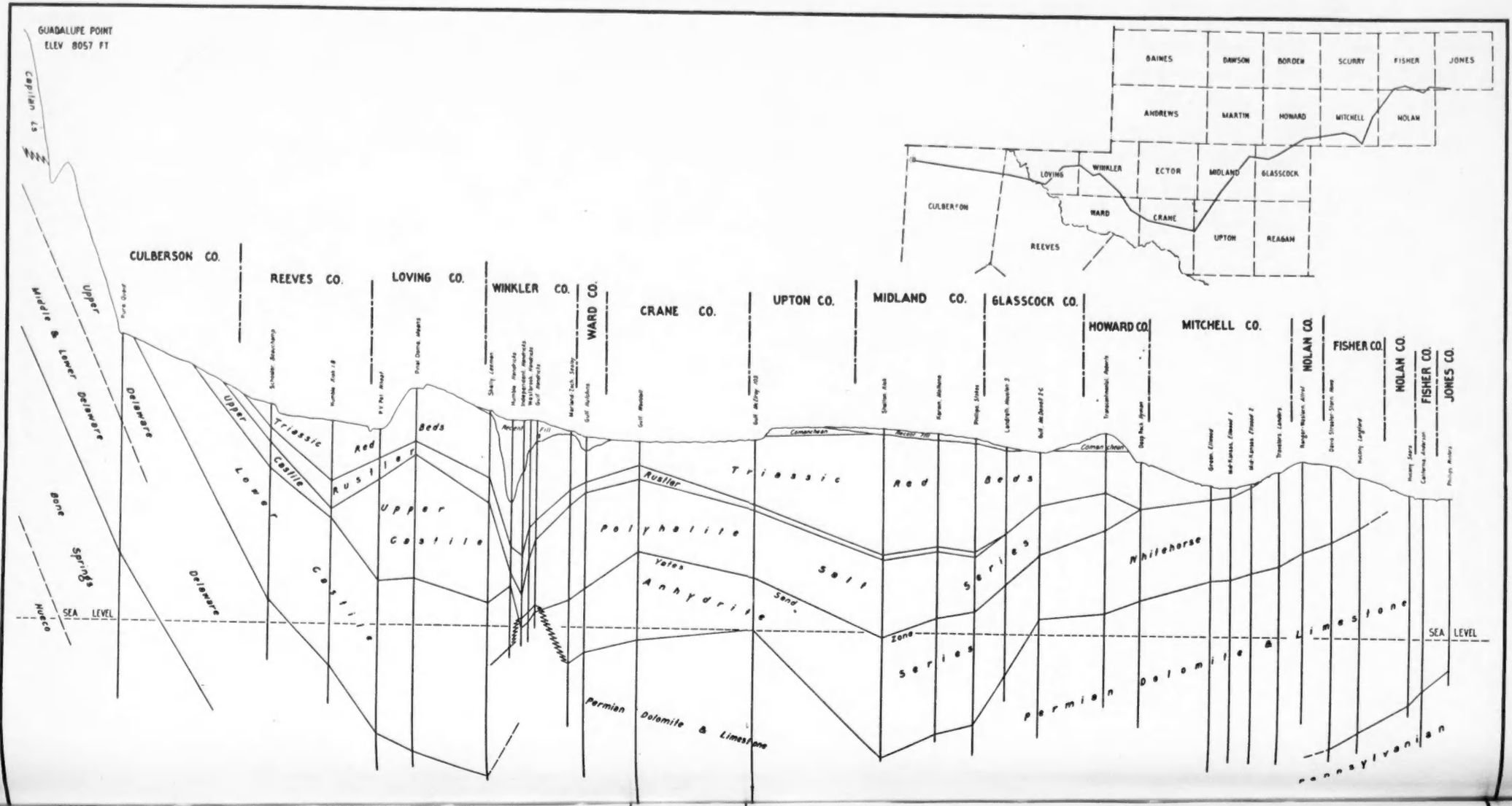


Reserves

The evaluation of reserves in the limestone pays of the Permian Basin is a much more difficult prob-

FIGURE 2

General Cross Section of Permian Basin



lem than in the sand formations in other areas. The pay is a meandering honeycombed porous section in a limestone. This porous section may have a fairly level top but the thickness and degree of porosity and permeability will vary considerably. In extreme cases dry holes may be drilled inside the productive limits of a field. Since it is more difficult to recover cores from the more porous formations, they cannot be depended on as a source of porosity determination and therefore drilling time is the best index to porosity and is more generally used. Little data is available on the amount of connate water present. The method of determining reserves now in most common use is to base estimates on decline curves of comparable areas. The Bureau of Mines is at present preparing a report on a study of reservoir conditions in limestone fields and the development of a method of estimating reserves therein.

During 1937 there was a marked increase in drilling, the number of active wells rising to a peak of 848 during May. During the year, a total of 3343 wells were drilled in the area. Of this number 3064 were completed as oil wells, 43 as gas wells, and 236 as dry holes. Production for the year totalled 101,328,574 barrels. During the week ending March 2, 1938, there were 610 active locations and rigs with 376 rigs actually drilling. The present daily allowable is 291,179 barrels per day based on the production schedule of Texas issued December 18, 1937, showing 190,079 barrels per day and New Mexico as of February 16, 1938, allowing 101,100 barrels per day.

A review of the above facts definitely proves that the Permian Basin ranks among the most prolific oil reserves of the world.

Drilling Conditions and Problems

In the Permian Basin the majority of the wells are drilled with rotary rigs, however, some operators still use the cable tool method. This paper will deal only with rotary rig problems. All of the drilling is done with rock bits which have many attendant problems.

The Permian Basin is fortunate in having a good natural road building material, caliche, which is found in many localities at the surface. The area has many miles of hard surface main and lateral highways and others are now under construction. Lease roads in most fields must be built through surface sand and the common practice is to construct roads 12 feet wide with an 8-inch thickness of caliche. Such roads cost about $1,800 per mile. In some fields, such as Goldsmith, surface caliche makes it unnecessary to build lease roads. The level surface frequently makes it possible to skid a derrick to an adjoining location, saving the expense of dismantling and erecting.

In general, rotary rig maintenance expense for such items as pump parts, chain, wire line, hose, brake lining, and lubricants are higher as compared to areas where the formations are softer. Most of the Permian Basin fields now being developed are relatively shallow compared to those in other areas of Texas and Louisiana. This advantage is offset to a certain extent by the harder formations drilled. Table 1 indicates this trend by a comparison of wire line service in Permian Basin and Gulf Coast fields:

The footage drilled per round trip is less in the Permian Basin but it is interesting to note that the total footage per line is greater. The ton-mile service is also comparable.

TABLE 1

Comparative Wire Line Service

Depth of Wells—Feet	Wells per Line	Trips per Well	Ton Miles per Line
Permian Basin:			
3000	10	21	3058
4500	6	25	4773
Gulf Coast:			
7000	3½	17	3062
8500	2	27	5431

Several items of rig maintenance which are of especial importance are considered separately. These include boiler repairs, bits, and drill pipe.

Water Supply

In most parts of the Permian Basin the water supply is sufficient to permit the use of steam rigs. However, in some areas the limited amount of water available makes the use of Diesel or gas-gasoline rigs necessary. Most water wells are less than 500 feet in depth and produce less than 1000 barrles per day. However, there are areas such as the Monument Draw which have an unlimited supply at a depth of about 100 feet.

Boiler maintenance is an item of particular importance due to the poor quality of the feed water which usually contains 20 grains per gallon permanent hardness and in some cases 40 grains. Most steam rigs are equipped with either two or three 125-horsepower 300-pound working pressure boilers and consequently boiler water requirements run from 700 to 800 barrels per day. The cost of treating water varies directly with its hardness and for a 20-grain water is an appreciable figure and requires constant attention. The problem of water treatment is complicated by the varied character of the water which differs not only from lease to lease in the same field but from well to well on the same lease.

The various methods of water treating used may be grouped under internal treatment and external treatment. Internal treatment is the easiest to apply but the most difficult to control because it is absolutely necessary to introduce the chemical continuously. Some of the internal treatments utilize sodium phosphate, sodium aluminate, or soda ash, together with some organic material.

The two common methods of external treatment are the cold-batch lime-soda and the Zeolite. The cold-batch lime-soda method requires equipment consisting of two 500-barrel tanks from which sludge is occasionally discharged through a drain line. Hydrated lime, soda ash, and a coagulant are added together, which results in a settling of sludge. Thorough mixing is necessary and about five hours is usually allowed for settling. The additional tanks are a disadvantage in rig movements.

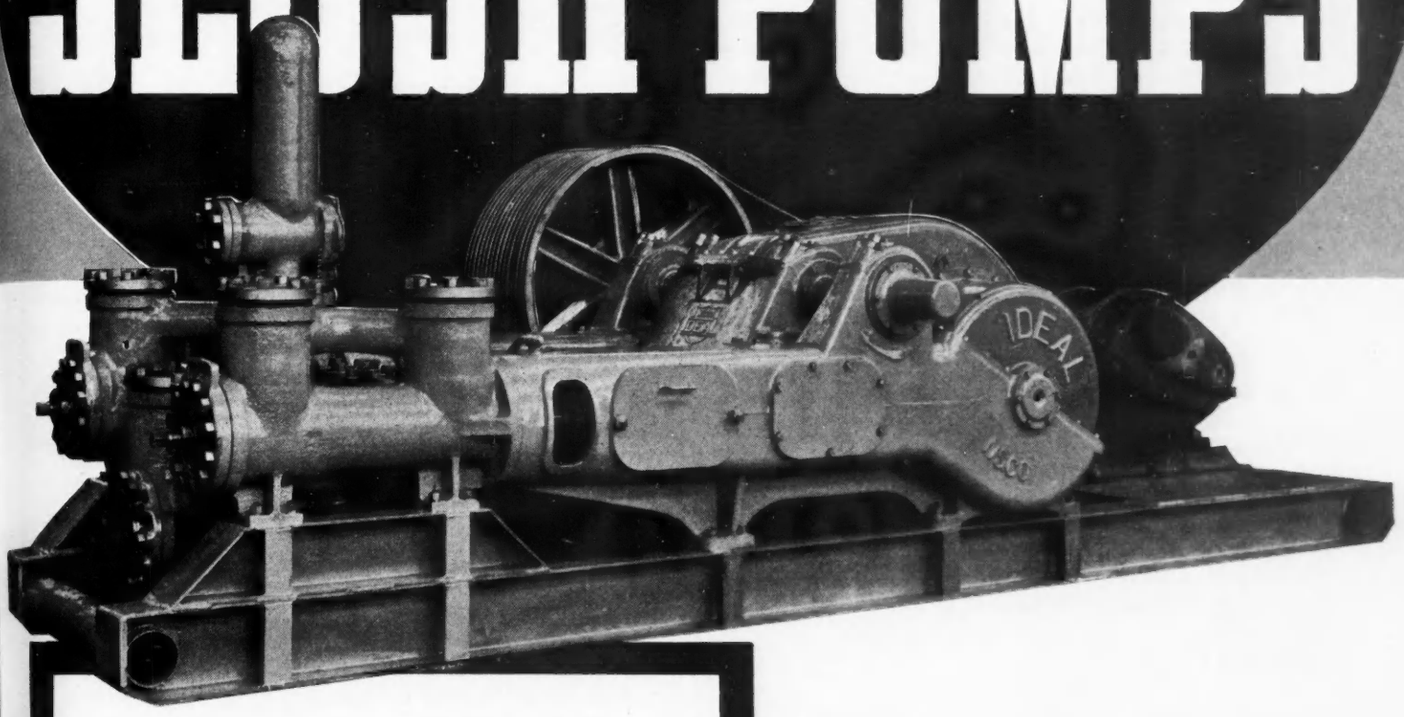
The Zeolite method is very simple and produces a water free from scale-forming minerals but does not reduce the total solids in a water and consequently the loss due to blowdown cannot very well be reduced even though there is no sludge to blow off. The equipment used consists of two softening tanks containing Zeolite mineral mounted on skids with a brine tank. The mineral which is a complex sodium silicate furnishes sodium to replace prin-

IDEAL TYPE "C"

"Reg. U. S. Pat. Off."

POWER DRIVEN

SLUSH PUMPS



● Ideal Type "C" Power Driven Slush Pumps are not only economical and dependable, but they are designed to maintain the high pressure circulation so necessary to present day rapid drilling. Available in three sizes to cover the usual range of rotary drilling requirements.

Model No.	Maximum Liner Size	Stroke	Maximum Working Pressure	Pressure Rating of Full Size Liner	Rated Speed	Rated H. P.	Weight, Pounds
C-150	6¾	12	2000	550	65	150	17000
C-250	7¼	15	2500	710	60	250	28975
C-350	7¾	18	3000	800	55	350	36400

NATIONAL

THE NATIONAL SUPPLY COMPANY

EXECUTIVE OFFICES: PITTSBURGH, PA.

DIVISION OFFICES: FT. WORTH, TEXAS; TULSA, OKLA.; TORRANCE, CALIF.

GENERAL SALES OFFICE: TOLEDO, OHIO

cipally the calcium of the scale-forming salt in the water and is periodically regenerated with a solution of sodium chloride. Timely regeneration and efficient washing are important. The principal operating expense is for the salt, which should be at least 98 percent pure sodium chloride as the presence of one percent calcium chloride, calcium sulfate, or magnesium chloride will increase the salt consumption by 4 or 5 percent. The cost of salt for a 20-grain water usually runs around $1.25 per boiler per 24-hour day operated.

Drilling Mud

The surface formations in the Permian Basin do not include enough mud-making materials to furnish a drilling fluid that will wall up the hole and it is necessary to use a native clay or a partial bentonite mud. The red beds below the seat of the surface casing make it a satisfactory mud, which usually requires thinning with water. This mud ordinarily can be used through the salt section. While practices vary in drilling the anhydrite and lime, commercial clays are usually added. Many operators add small amounts of bentonite at regular intervals to avoid losing mud in porous zones. A well conditioned mud is considered to be one weighing from 9¾ pounds per gallon and with a Marsh funnel viscosity of 30 seconds. While drilling the salt section the weight will increase to around 10.75 pounds per gallon, but the viscosity will not change appreciably.

A mud of proper viscosity and colloidal content is essential to good walling qualities and removing cuttings from the hole, and is also good insurance against stuck drill pipe. Slow circulation in badly caving surface sands assists in walling up the hole but fast circulation is generally desirable to safely remove lime cuttings and cavings. Salt is a coagulant and causes separation of the mud unless it is properly conditioned. The addition of hydrated lime and bentonite assists in counteracting this detrimental action of the salt.

Recently some experimenting has been carried on using soluble powdered limestone and oyster shell muds for drilling in and workovers with the idea that subsequent acidization will react with the mud and release any obstruction to the flow of oil.

Loss of returns is not a serious problem in any of the fields now being developed, however, mud is frequently lost while drilling the surface formations if a mud with good walling qualities is not used. In the Henderson field, the pay section is a cavernous limestone and frequently returns are lost while drilling the top of the pay section. In some cases it has been necessary to use cottonseed hulls to regain circulation.

The presence of free gas and sufficient bottom-hole pressure to maintain a flow of oil is a condition existing in most areas and of course proper precautions must be taken against blowouts. Occasionally high-pressure gas or air pockets are encountered in the evaporite series, particularly in New Mexico, but the volume of gas is small and the pressure is readily dissipated. An unusual well in Howard County just east of Big Spring flowed an estimated 300,000,000 cubic feet of air per day for several days. When such pressures are encountered most operators allow the well to unload and blow open until the pressure is dissipated. Ordinarily the pressure is normal for the depth at which the gas is encountered but occasionally abnormal pressure is found. In the Means field, gas occurred at 2957 feet in the base of the salt section which built up a surface pressure of 1770 pounds. The Yates strata just below the salt in some areas produces gas of unusual pressure. The original bottom-hole pressure in 3000-foot fields as Kermit was about 1500 pounds while in the 3900-foot Eunice and Monument fields it was about 1650, and in the 4250-foot Goldsmith field about 1950. These pressures make proper mud conditioning and the use of suitable blowout-preventer equipment and casing programs necessary to safe drilling operations.

Rock bits are used for all drilling in the Permian Basin except for some red bed sections which are drilled with drag bits. Care must be taken to avoid slowing up drilling by keeping a bit in the hole too long as its rate of penetration is one of the most important factors influencing its economy of operation. There is also danger of leaving bit parts in the hole if a bit is run too long. The higher the rate of penetration so long as the total footage cut is reasonable, the cheaper will be the bit's cost per foot.

Bits and Drill Pipe

The selection of the size bit to use deserves considerable attention. The hole drilled should be the smallest providing sufficient clearance to avoid sticking the drill stem or casing. An 8¾-inch hole is ordinarily drilled for 7-inch casing and a 7¾-inch or 6¾-inch hole for 5½-inch casing.

Drill pipe service in the Permian Basin can never be as high from a footage standpoint as in other areas where softer formations are drilled. However the service in hours rotating compares favorably. Most drill pipe now in use is internal upset with full hole tool joints, however, the present tendency is to go to internal flush drill pipe because the internal flush joint eliminates the turbulence at internal upsets in conventional tool joints. The principal object of circulating more fluid is to insure carrying cuttings away from the bit immediately, otherwise drilling progress will be retarded by regrinding of the cuttings. The use of 4½-inch drill pipe weighing 18 pounds per foot is being tried in an effort to better the service of the 16.6-pound pipe. One 18-pound internal flush string which has drilled 106,000 feet in 5846 rotating hours is still in use with a record of 14 drill pipe and joint failures to date.

Some operators have tried the use of 4½-inch drill pipe in 20-foot rather than 30-foot lengths, the 20-foot pipe to be handled in fourbles. They believed that closer spacing of the tool joints will give greater rigidity and will allow drill pipe weight to be carried on the bit without kinking while drilling in an enlarged hole in the salt section. However, in most areas 30-foot joints are used and with a proper weight balance, no more trouble will be experienced and at the same time the additional initial cost will be eliminated.

Up until recently most operators thought they were getting good results if they drilled 35,000 feet of hole with a string of pipe. One operator has obtained good results by transferring drill pipe to other areas where service is less severe after using it on four wells. An attempt to rework drill pipe after six wells by cutting off the drill pipe threads and rethreading was unsuccessful, the fatigue evidently not being limited to the original threaded portion. It is

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now a general opinion that the life of drill pipe depends to a great extent on the use of the latest type of joint that utilizes the principle of bridging across the imperfect threads from tool joint to pipe, the application of weight above the bit by long drill collars and control of speed of rotation. These items are discussed in detail later.

Fishing jobs are the results of the common drill pipe and joint failures as well as stuck pipe. The best assurance to successful recovery of drill pipe that has parted is to have on the derrick floor a fishing tool ready to run, have rotary mud in good condition, and provide large enough pumps to rapidly remove cuttings as they are drilled since bad fishing jobs are invariably due to cuttings settling around the pipe. Another item of great importance is to tighten all joints every trip with the automatic cathead and also change the break of the pipe every few trips. If the pipe is stuck and cannot be freed by working, the usual practice is to pump in oil. If this fails an acid treatment may be successful, provided limestone or dolomite is present. As a last resort it may be possible to wash over the pipe with casing and make inside cuts.

Another type of fishing job occurs when bit parts or other metal junk must be recovered. Basket bits, side door baskets, and mills are used in drilling up and recovering such material.

There are several factors bearing on drilling efficiency and speed which deserve special attention. These items include the use of drill collars, the weight on the bit, the speed of rotation, and the pump speed.

The size drill collar used depends on the hole size and is usually 7¾-inch OD 144-pound per foot for the surface hole, 6⅝-inch 120-pound for an 8¾- or 7¾-inch hole, and 5¾-inch 75-pound or smaller for a 6¾-inch hole. Many operators use a single 30-foot drill collar. Others use three or four collars with a total length of about 90 to 120 feet. With the use of weight directly above the bit there is less danger of break offs or deviation of the hole since this will allow tension to be maintained in the drill pipe.

Reamers are not in general use and are considered to slow drilling somewhat and complicate fishing without compensating advantages. However, stabilizers designed to serve the same purpose as reamers are used by many operators. Where a single 30-foot drill collar is used, a stabilizer is sometimes used above it in drilling to the top of the lime. In some cases a stabilizer will be used above 90 feet of drill collars. Some operators when drilling in with oil place a stabilizer directly above the bit and use no drill collars or reamers.

Drilling Technique

On the basis of experience most operators have concluded that the following drilling technique is the best to use in the Permian Basin. In drilling the surface formations the weight on the bit is varied depending on the rate of penetration, the speed of rotation is 50 to 60 r.p.m. and the pump is run slow. In the salt and anhydrite sections the weight is gradually increased although all of it is never placed on the bit, the speed of rotation is 125 r.p.m., and the pump is run wide open. In drilling lime the weight is varied according to the rate of penetration but all the weight is not placed on the bit in order to avoid kinking the drill pipe in the oversize hole through the salt, the rotary speed is 80 to 100 r.p.m., and the pump is run wide open. The average speed of the pump when running wide open is governed by the steam pressure available, size of drill pipe, and depth of hole. It will average about 40 to 50 s.p.m. although 60 s.p.m. is not uncommon at shallow depths.

The weight carried on the bit can be checked by comparing the weight indicator reading with the pipe suspended off bottom with the reading while actually drilling. With six lines strung a difference of seven points, which is not uncommon in this area, corresponds to about 16,000 pounds. If a 90-foot string of 6⅝-inch drill collars (120 pounds per foot, 5-9/16-inch thread) is used, about 10,800 pounds are placed directly above the bit. One manufacturer of rock bits suggests an average weight of 9000 pounds while drilling hard lime with an 8¾-inch bit and another manufacturer suggests 11,000 pounds. It can readily be seen that with such loads on the bit the concentration of weight directly above it through the use of drill collars will allow tension to be maintained in transmitting power to the bit. This tends to keep the drill pipe in a vertical position.

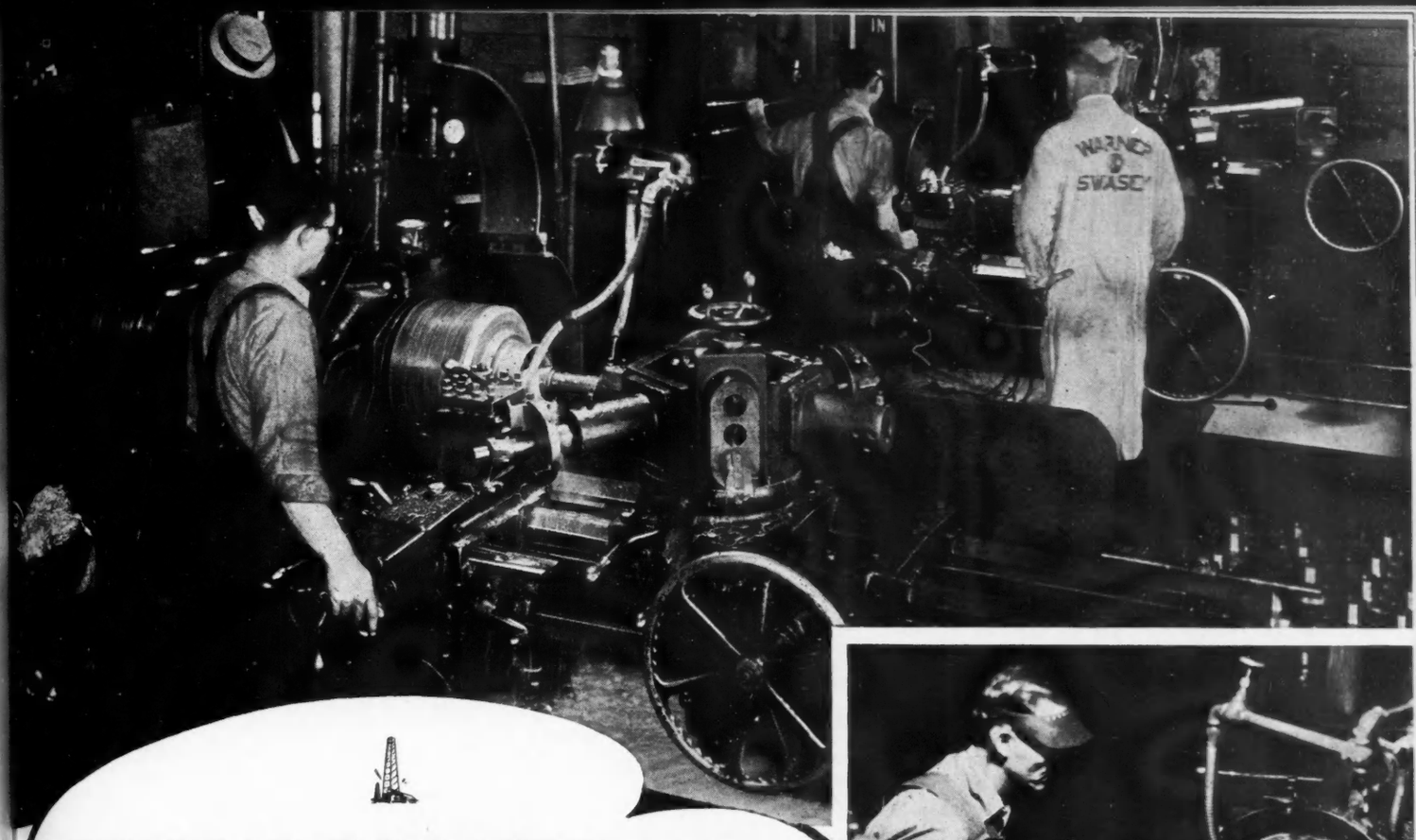
Well completions are costly and proper methods are important in the successful completion of a well. For instance in the Kermit field a well is often drilled to the oil string casing seat in 8 or 9 days, but drilling the pay requires 2½ days and the shooting, cleaning out, and setting of a liner requires 2 additional days. In a number of instances combination rigs are used, changing to the spudding attachment to drill into the pay section. The question of drilling in with rotary using mud or oil is a controversial question, but whatever method is resorted to a knowledge of all the facts is necessary to a successful completion. Where oil is used additional equipment is necessary if the formation pressure is great enough to unload the hole of a column of oil.

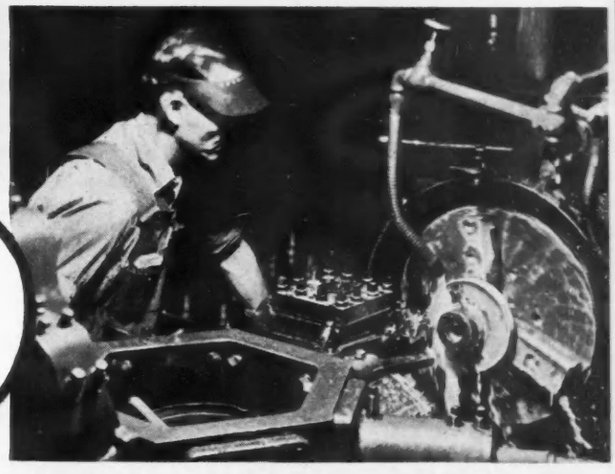
It is reasonable to believe that if there is enough formation pressure to produce a differential greater than a reduced mud column and there is no loss of mud in the formation other than the normal amount of mud penetration that the use of mud will not harm the productivity of the well.

Acid Treatment

Hydrochloric acid has been used to increase the productivity of dolomite or limestone pays for several years but new developments are still taking place. Acid treating, where applicable, has advantages over shooting in that an expensive cleanout job is not necessary and the hole is left in such a condition that plub-backs or packer settings can be successfully made. The best acid treating results are obtained in such fields as Henderson where a relatively pure limestone is present. Most large treatments are now made in two or more stages. The first stage paves the way for the second stage by cleaning the hole and starting the solution channels into the pay.

The porosity in the Goldsmith field is such that there is danger of treating a well into a high gas/oil ratio by forcing acid into the gas horizon, even when casing is set below the gas/oil contact. Two methods of avoiding this have been used. One consists of pumping oil down the casing while the acid and oil flush are being placed through the tubing. The other consists of "floating" the acid in, that is pumping it





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into the tubing at a pressure not to exceed the shut-in tubing pressure before starting the treatment. The best indication of acidizing results is the change in pump pressures while pumping acid into the well.

Shooting with nitroglycerin is used to advantage in increasing the production of wells producing from sandy or anhydritic limestones. Both solidified and liquid nitroglycerin are used, the present trend being toward solidified, due to its greater safety. The general practice at new wells is to shoot the entire pay section. Mechanical, mechanical duplex, and electrical duplex time bombs are available, the electrical duplex being in most general use. Untamped shots are usually placed at least 60 feet below the casing seat while gravel tamped shots may be placed within 30 feet of the seat. Gravel tamping is coming into general use because it is cleaner and safer. Proper gravel tamping increases the efficiency of the shot, furnishes additional protection to the casing and permits shooting closer to the casing seat. On the other hand tamping requires additional time both in shooting and cleanout.

Both cable tool and rotary rigs are used in cleaning out shot holes. This is a more difficult procedure in limestone than in sand pays. In the Kermit, Estes, and North Ward fields—sandy lime pays—one operator averages about 2 days to shoot, wash the shot hole to bottom, and run liner and tubing.

In many of the fields the oil producing area is overlain by a gas cap which presents a problem that is deserving of careful study if the gas energy is to be conserved. The best example of this type of field now being developed is Goldsmith. In this field most operators take several cores at the depth where the gas/oil contact is anticipated and set casing at the first oil saturation. One operator cores the entire pay. Two operators run electrical temperature surveys instead of coring. When these precautionary measures do not prevent high gas/oil ratios, formation packers are set except where the hole has been shot, in which case cement squeeze jobs have been used with fair success.

Producing Conditions and Problems

The producing conditions and problems are varied and peculiar to the area and a number of these are discussed separately.

Table 2 lists the characteristics of typical Permian Basin crudes:[2]

While not a major problem in all fields, paraffin accumulation causes considerable expense. The general practice is to remove it from the tubing by scraping and from flow lines by heating. In the Means field about a third of the wells are produced by gas lift and many of these must be scraped as often as once a week. In the Cowden field automatic paraffin scrapers are used. In the Goldsmith field paraffin is principally a problem at pumping wells. Several newly developed chemicals are now being tried out which may prove to advantage.

Workovers to decrease gas/oil ratios have been particularly necessary in the Goldsmith and North Cowden fields, usually due either to setting the casing high or to acid treating into the gas pay. In some parts of the field the use of formation packers has been successful. This method is also used to good advantage in such fields as Hobbs where a definite break occurs between oil and gas pays. Squeeze cement jobs and cemented liners have been used successfully in several cases. The selection of the most efficient rate of flow is a production practice which frequently lowers a well's gas/oil ratio.

TABLE 2

Properties of Crude—West Texas Fields

FIELD	Gravity, ° A.P.I.	Total Gasoline and Naphtha Content, Percent	Sulphur, Percent	Color
Howard-Glasscock:				
East Pool—1400 ft. zone..	33.0	22.0	1.02	Brownish green
1800 ft. zone..	32.1	24.0	0.82	Brownish black
2500 ft. zone..	26.6	22.2	3.43	Brownish black
3000 ft. zone..	26.6	20.8	2.01	Greenish black
West Pool—2200 ft. zone*.	30.4	16.0	0.87	Brownish green
Yates	30.6	22.9	1.53	Greenish black
Hendrick	29.1	21.5	1.52	Brownish green
Church-Fields-McElroy	33.0	27.0	2.42	Greenish black
Big Lake—8500 ft. zone	46.3	41.0	0.18	Green
Hobbs	37.0	37.6	1.45	Greenish black
Penwell	30.8	22.0	2.59	Brownish green
Westbrook	22.3	25.6	3.92	Brownish black

* Second pay member.

Cement plug-backs to reduce water production are successful in some instances, particularly where the pay has low porosity and permeability. To date this method is not successful in fields of high porosity such as Hendrick in Winkler County. It is the consensus of opinion that even though the cement is properly placed, the water will migrate around the cement plug away from the bore hole and if true this condition is impossible to overcome.

Most oil and gas produced in the Permian Basin contains some sulphur and hydrogen sulfide and corrosion of surface equipment is prevalent. Little corrosion is found in wells producing pipe line oil and severe general corrosion is found in relatively few fields. There is considerable variation in the relative corrosion of different wells in the same field.

Corrosion

Practically all wells are originally equipped with Grade C steel tubing, carbon steel sucker rods, and common barrels. At the wells where corrosion is severe wrought iron and alloy steels are being tried as replacements. The fields in which unusually corrosive wells have developed include Howard-Glasscock, Penwell, Hendrick, Crane, Goldsmith and Means. Working barrel corrosion has been severe at pumping wells in the Goldsmith field producing water. In the Means, Goldsmith, and Cummins areas the lower 1000 feet of Grade C tubing strings have showed a decided localized pitting after two years' service. At one casing pump well in the Hendrick field the first break in each of the last five strings of sucker rods has occurred within 51 days of installation.

Both steel and wood stock tanks are in general use. Plain steel tanks have not proved economical as gunbarrels or wash tanks due to the highly corrosive property of bottom water in contact with air. Most gunbarrels in use now are of the wood type or galvanized metal.

Operators in the Permian Basin are faced with a tremendous lifting problem in the future as the present flowing wells require artificial lift installation. Pumping is still the principal method of artificial lift employed in this area but there has been a recent increase in the use of gas lift in fields where gas is available. While the use of 2-inch tubing is now almost universal on new wells most of the older

[*Continued on page 46*]

THE USE OF DRILLING TIME IN DETERMINING

Completion Practices

GOLDSMITH POOL

By MAX DAVID
Landreth Production Corp.,
Midland, Texas

DRILLING time is the time required to drill a certain interval, usually one foot. The presence of porous zones and their thickness may be determined on rotary wells by this method. Porous dolomitic limestone drills faster than impervious dolomitic limestone.

There is a close relationship between drilling time and well potential in the Goldsmith pool. The estimation of relative property values is made easier and more accurate by drilling time.

Casing points, total depths, method of acidization, and the placing of nitro shots, may be determined by drilling time. It also furnishes valuable information for remedial work, such as plug back depths, selection of packer seats, liner positions, and pipe perforations.

The drilling time record should be made an integral part of the information secured on rotary wells in those areas where it is applicable. It furnishes valuable information to the engineer and geologist when accurately obtained. The cost of keeping these records is practically nil.

This paper was presented at the spring meeting of the Southwestern District, A. P. I. Division of Production, Fort Worth, Texas, March 24-25, 1938.

The statements and opinions expressed herein are those of the author, and should not be construed as an official action or opinion of the Institute nor of this publication.

DRILLING time on rotary wells is being used to advantage by many operators in the Permian Basin. For example, drilling time is helpful in determining certain completion practices, such as the selection of casing seats, manner of acidization, shot positions, and the determination of total depths. Corrective work is likewise made easier. Plug-back depths, packer seats, and casing-perforation zones, may in part be determined by drilling time. Due to the variations in the hardness of different formations, drilling time has proved to be a valuable correlative aid, and in the pay section in dolomitic limestone it can be used for the relative evaluation of properties.

It is the purpose of this paper to demonstrate the value of drilling time in the interpretation of the pay section of dolomitic limestone reservoirs. Other practical applications will be illustrated. All examples are taken from the Goldsmith pool, Ector County, Texas, which may be considered typical of dolomitic limestone reservoirs in the Permian Basin.

Drilling Time Procedure

Drilling time may be defined as the time required to drill a certain interval. One, two, five, and ten-foot intervals may be used; however, one-foot intervals in the pay section give a more detailed picture. The kelly is marked off with paint according to the desired interval. The time is recorded as each mark reaches the rotary table, and the number of minutes required in drilling the interval is determined. Each mark on the kelly corresponds to the present drilling depth. Ordinarily, the driller has one of his helpers take care of the drilling-time record.

The drillers are asked to maintain a constant weight on the drill stem and to rotate at an even speed. Usually, 5 to 6 points less than the pick-up weight is carried on the drill pipe and a rotary speed of 50 to 60 revolutions per minute is maintained.

Mechanical difficulties in some cases will interfere with the results and accuracy of the drilling-time record. Junk or loose iron on the bottom of the hole will naturally result in slow drilling, regardless of the hardness of the formation. Even with certain human and mechanical factors, drilling time is a good indicator of porous and non-porous dolomite.

Description of the Pay Section in the Goldsmith Pool

Like many other pools in the Permian Basin, the reservoir rock in the Goldsmith pool is dolomitic limestone. The pay zone may be divided into two parts, the upper pay or the white crystalline zone and the lower brown anhydritic zone. The two zones cover a stratigraphic thickness of some 250 feet. Free gas caps exist in the field and the gas-oil contact at present is found at a sub-sea datum of approximately 980 feet. Oil is found in both zones, depending upon structural position. High structural wells find the white crystalline zone filled with gas and produce entirely from the brown anhydritic zone. Low edge wells find the pay in the first porosity in the white crystalline zone. The best producers are those wells so structurally situated that they encounter the white zone porosity at the gas/oil contact.

More porosity and permeability is found in the white zone than in the brown anhydritic zone. The brown zone possesses considerable amounts of secondary minerals, such as calcite, anhydrite, and even

sulphur. In some parts of the field anhydrite and calcite are found replacing the porosity in the white zone.

In the gas caps in the pool, the oil string is cemented at or a few feet below the gas/oil contact. Only one rotary bit is required to drill the plug and drill in. Drilling-in fluids used are either oil, clear water, or mud.

Comparison of Porosity and Drilling Time

A comparison of the porosity found in cuttings and cores of dolomite with drilling time reveals that fast drilling time usually conforms to the best porosity. By recording the drilling time required to drill individual intervals of one foot, it is possible to determine exactly the number of feet of porous dolomite drilled, and secure a fair idea as to the quality of the porosity. Conversely, the non-porous zones drill slowly. Well cuttings and cores should be microscopically analyzed to check the drilling time, at least until definite relations are known to exist between the two.

For this study, drilling time of the pay section was recorded for each foot drilled. It has been found that on the average, when the drilling time requires more than 10 minutes to drill one foot, there is little effective porosity. Six to 10 minute drilling time indicates slight porosity, 3 to 6 minutes indicates fair porosity, and less than 3 minutes suggests very good porosity. This relative classification works well in the Goldsmith pool, however, it may vary with other limestone fields, depending upon the nature and character of the reservoir rock.

Porosity percentages of cores recovered compared with drilling time show that the following table represents fair averages:

Time in Minutes	Average Porosity
10 or over	0— 3%
6 to 10	3— 5%
3 to 6	5—10%
1 to 3	10—20%

The deposition of secondary minerals, such as gypsum and calcite, reduces the porosity and permeability of the rock. Since minerals like gypsum are drilled rapidly, fast drilling time under such conditions does not reflect their actual lack of porosity. It is well to examine the samples in such cases.

Core recovery in very porous crystalline dolomite is usually poor. The most porous parts of the white crystalline dolomite are crumbly due to their extreme crystallinity and have a tendency to wash away during coring. In cases where there is no core recovery, but the drilling time is very rapid, it is safe to assume that the formation has a high percentage of porosity. The core recovered usually represents the less porous portion. From this standpoint, drilling time gives better information than coring when little if any recovery is secured.

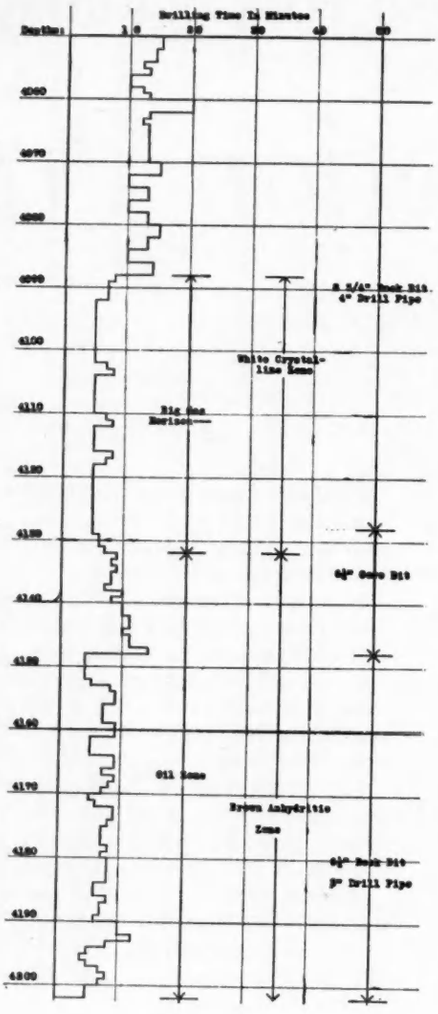


FIGURE 1

Determination of Porous Zones on a High Structural Well

Well No. 1, Figure 1, shows the plotted drilling time on a high structural well. The drilling time was recorded under different drilling conditions as shown by the notations. From 4050 to 4128 feet, an 8¾-inch rock bit and 4-inch drill pipe was used; from 4128 to 4148 feet coring was done with a 6¼-inch hard rock core head; and from 4148 to the total depth, 4202 feet a 6¼-inch rock bit with 3-inch drill pipe was used. Thus the drilling time was tested under various drilling conditions.

At 4090 feet the "big gas" porosity was encountered in the top of the white crystalline dolomite. A core was taken from 4128 to 4148 feet to find a casing seat sufficiently deep to be through the "big gas." The upper four feet of the core was very porous and the rest of the core only slightly porous. Practically no oil stain was found in the upper 4 feet of the core, indicating that the base of the "big gas" was at 4135 feet. The rest of the core showed oil saturation with little porosity. The gas occupied all of the upper pay, or all of the white crystalline zone. The oil section was entirely in the brown anhydritic zone.

Drilling time of the pay section as well as the cuttings indicated comparatively poor porosity. Well No. 1 was a light well natural and after acidization. Had the white crystalline zone been encountered just below the gas/oil contact, it would undoubtedly have been a prolific producer.

Determination of Porous Zones on a Low Structural Well

Well No. 2, Figure 2 shows the drilling time on an east edge well in the Goldsmith pool. The oil string was purposely set high on this location as the well was out of

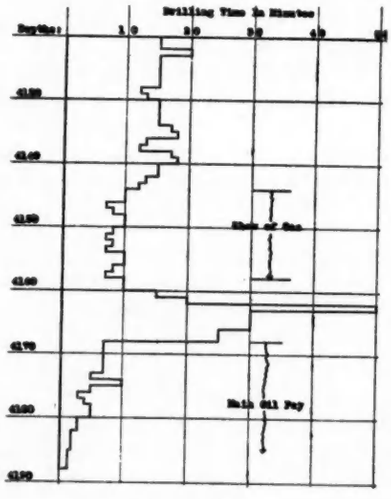
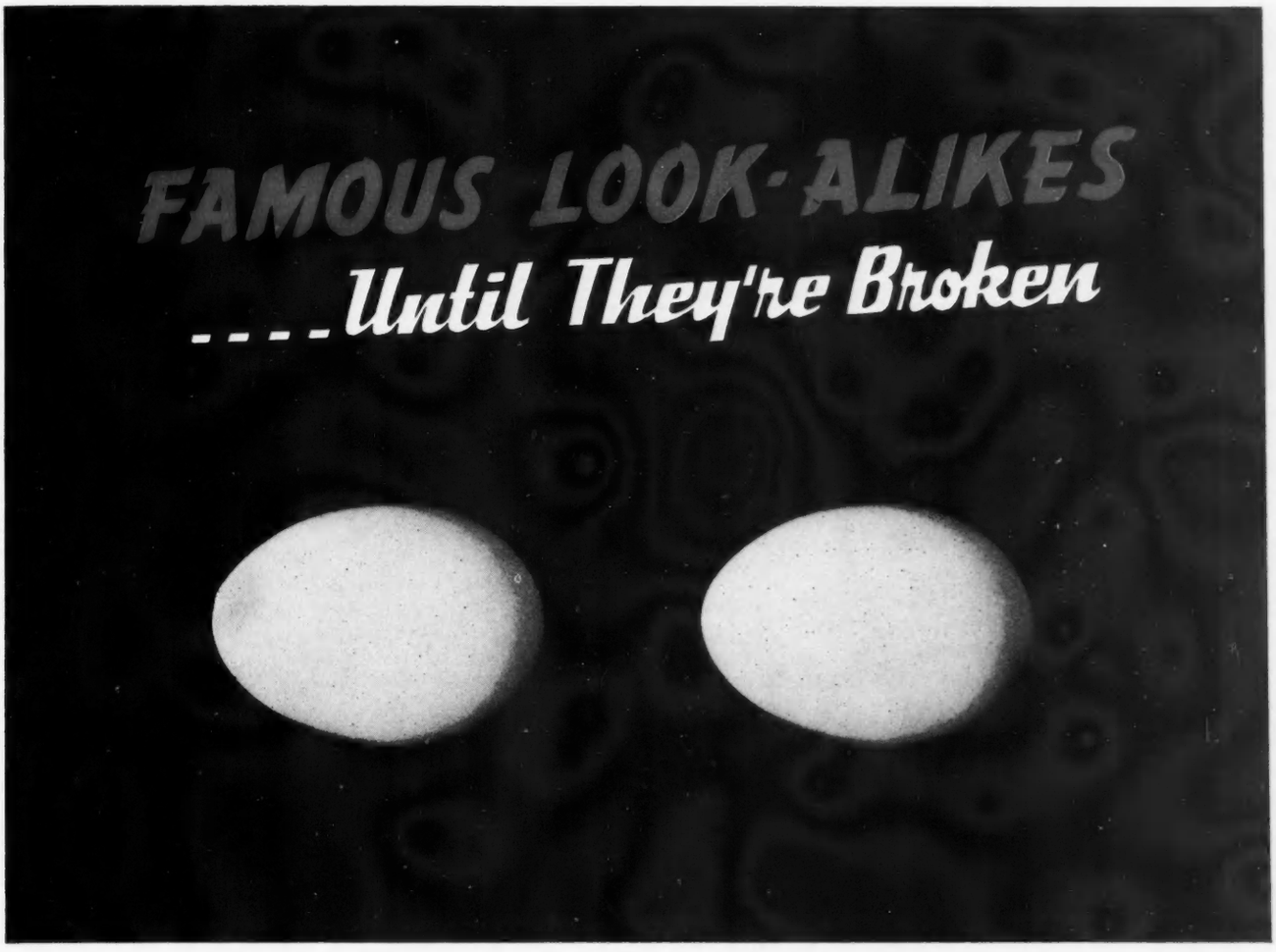


FIGURE 2

the free-gas area. Slight porosity with no oil stain was found in the cuttings from 4150 to 4160 feet. The drilling time indicated some porosity here and it proved to be a slight show of gas. The main porosity or pay was encountered at 4170 feet as shown by the drilling time. Samples showed the best po-



The remarkable difference in eggs is, unfortunately, not shown on the shell any more than real values in steel castings are revealed on the surface. The important point in buying, therefore . . . be it eggs, castings, or anything else . . . is to consider the dependability of the seller.

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rosity to be in the last 10 feet drilled. The drilling time checks in this respect. Due to the low structural position of the well, only a few feet of the pay was drilled. Drilling time alone could have been used on this well to determine the top of the pay and how much was being drilled, however, it is always well to check the drilling time by microscopic examination of cuttings.

Comparison of Drilling Time and Well Potential

Wide variations in well potentials are typical of limestone reservoirs. This is unquestionably the result of erratic developments of porosity and permeability. Variations in well potentials, especially between offset wells, are often a matter of concern. Variation of well potentials in the Goldsmith pool are attributed to the amount of porosity as shown by drilling time of the pay section.

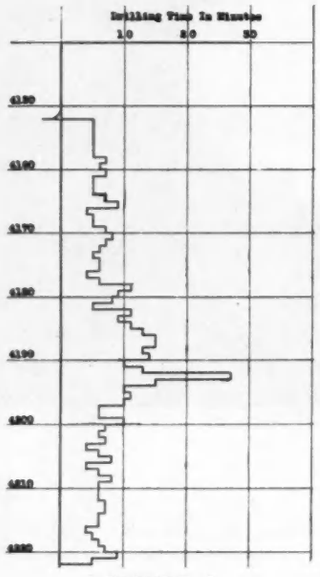


FIGURE 3

Comparison of Offset Wells

Wells No. 3 and No. 4, Figures 3 and 4 show offsets on the same lease, 770 feet apart. As the drilling time indicates, well No. 4 was a much better well with respect to porosity than well No. 3. Both wells were treated with 5500 gallons of acid in two stages. Well No. 3, tested at the rate of 1900 barrels a day and well No. 4, had a potential capacity of 2700 barrels. Well No. 4 had 77 feet of penetration, all of which was porous as shown by drilling time. Well No. 3 had 70 feet of penetration, of which 52 feet was porous as shown by drilling time. Well No. 3 had 37 barrels potential per porous foot of pay whereas well No. 4 had 35 barrels per porous foot of pay.

Comparison of Wells Some Distance Apart

Well No. 5, Figure 5, had a very soft pay section. Drilling time shows that the porosity was vertically continuous. Well No. 5 was good for 30 barrels an hour natural and acidized into an 1800-barrel well after being treated with 5000 gallons of acid administered in two treatments.

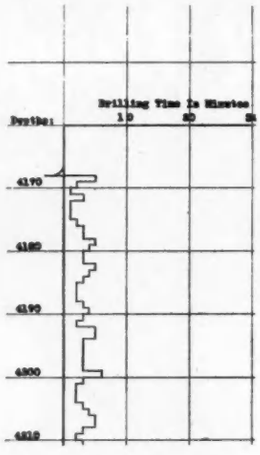


FIGURE 5

Well No. 6, Figure 6, is 1½ miles from well No. 5, but in the same relative structural position.

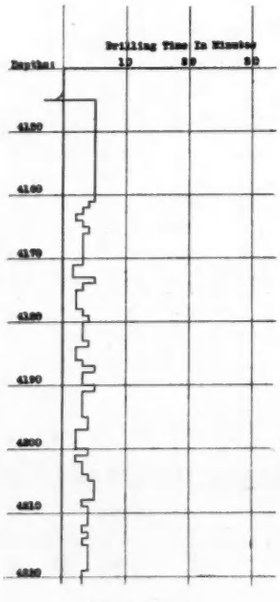


FIGURE 4

Well No. 6 had a greater penetration of the oil section than well No. 5, however it was a light well as might be suspected by the slow drilling time. The best porosity was in the bottom 13 feet. After being treated three times with a total of 6500 gallons of acid, it was good for only 650 barrels per day.

In comparing wells No. 5 and No. 6, well No. 5 has 43 feet of soft pay section and a potential of 1800 barrels, one foot of pay being equivalent to 41 barrels potential. Well No. 6, with only 13 feet of medium soft pay section and a potential of 650 barrels or 1 foot of pay to 50 barrels potential. The discrepancy between the 2 wells on a footage potential basis is not great, and may be explained by the fact that well No. 6 was given an additional 1500 gallons of acid or that there is some pay in the hard dolomite considered to be lacking in porosity.

Estimation of Relative Property Values by Drilling Time

It is believed there is a distinct relationship between the hardness of the pay section and well potential. Likewise, there is no doubt that there is more oil per acre-foot under the leases having very porous pay zones as shown by drilling time. From the standpoint of recovery, wells having soft pay sections, which indicates high percentages of porosity, should recover more oil than a well possessing a tight porous condition in the same structural position. While it is true that difference in porosity may exist a few feet away from the bore hole, a study of the drilling time on all wells on a lease should result in a relative accurate average of porosity.

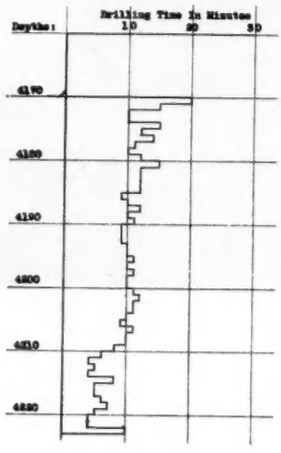
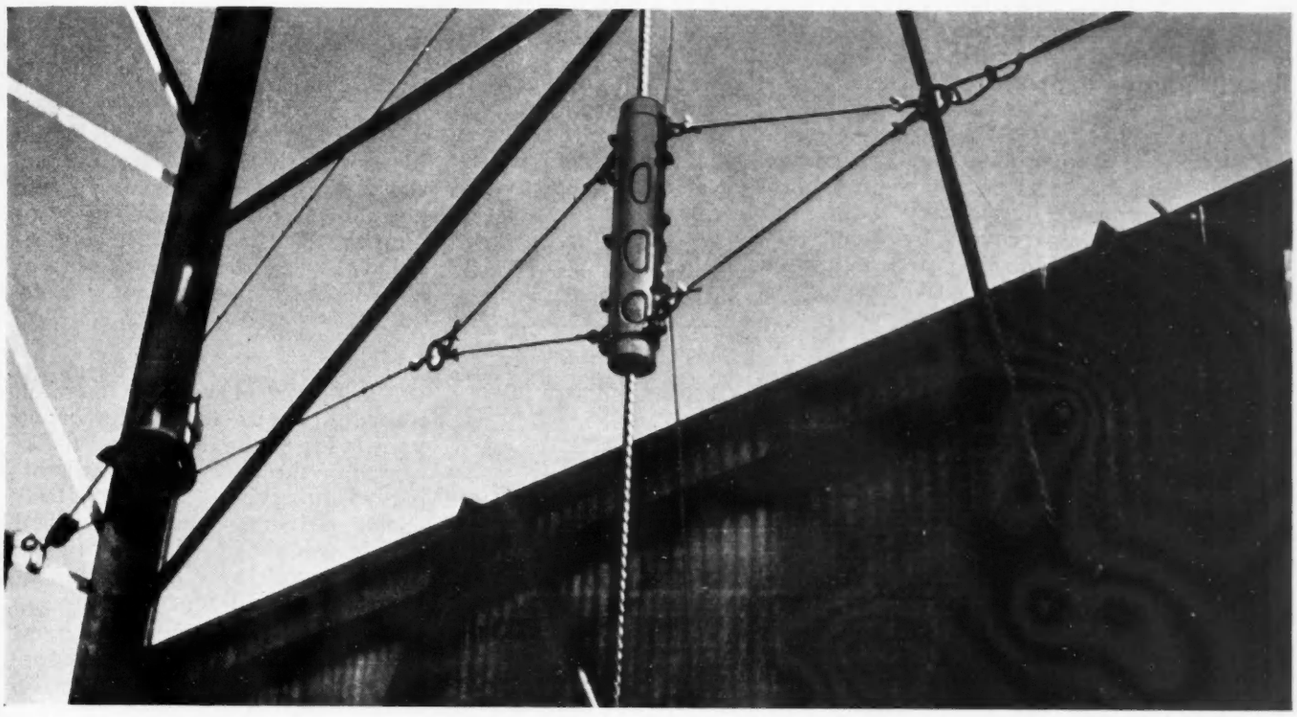


FIGURE 6

Ultimate recovery from limestone reservoirs is difficult to estimate with any degree of accuracy by the volumetric or oil in place method, on account of the lack of information regarding percentages of porosity. With accurate drilling



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time, the proper assignment of porosity percentages to equivalent drilling time, and the construction of bottom-water maps, it is believed that the volumetric method of estimating ultimate recovery in limestone fields still has great possibilities. While the degree of accuracy attained in estimating recovery by the volumetric method in sand production cannot be made, a better degree of accuracy can be realized by the proposed method. To reach a higher degree of accuracy, more accurate and detailed information than heretofore obtained must be secured during drilling.

Use of Drilling Time for Completion Practices

(A) Selection of Casing Seats from Drilling Time

Well No. 1 affords a good example of how drilling time may be used to advantage in determining casing seats by drilling time. The hard zone separating the gas and the oil afforded a relative impervious bed for the casing seat. Well No. 2 had a very hard zone from 4160 to 4169 feet which would have been an ideal casing point had there been too much gas above this zone.

(B) Determination of Total Depths by Drilling Time

The determination of total depths in limestone reservoirs should be based on reasonable penetration of the pay zone without drilling too near bottom water. There are two points of view regarding total penetration in limestone. The first is to stop the well on a hard shell and the second is to stop in the top of a porous zone with practically no penetration into the porous zone.

The total depth of a well should be determined with reference to the bottom water level. Stopping on a hard shell in the Goldsmith pool, assuming reasonable penetration, offers two distinct advnatages, namely, some protection against the eventual encroachment of bottom water and the safeguard of possible acidization into water. One disadvantage of this procedure is that there may be an additional oil pay below the hard shell, however, there also might be water in the next porous zone. Stopping in a porous zone offers the probable advantage of recovering nearly all of the oil present in the zone down to the next hard shell. If both oil and water are present in this zone, the chances are the water will cone and the well will make water early in its life.

In the Goldsmith pool, it is believed that there is a definite advantage in stopping wells on shells if they are present and are found not more than 20 feet above the known water level. In the cases where the porosity is continuous to the water table, it is best to stop the well relatively high to avoid premature water encroachment.

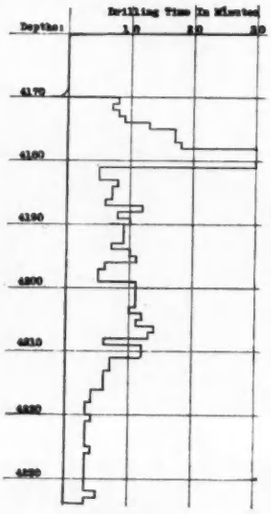

FIGURE 7

(C) The Importance of Studying Drilling Time Before Acidizing

Acid when properly controlled increases the rate of oil production in the Goldsmith pool. The two hazards of acidization are increasing gas/oil ratios and treating into water, which are usually caused by the attempt to treat with acid at too fast a rate, thus building up pressures so high that control of the acid is lost. Sometimes the treatment is made by following out instructions that were developed without a careful study of well conditions. When high pressures are required to inject acid into the well, it has low permeability and the acid should be pumped in at a slow rate to allow it to increase permeability immediately around the bore hole before attempting to force the acid out into the formation. When acid is pumped in the well at too high rates, control is sometimes lost and the acid is forced up into the gas zone, resulting in high gas/oil ratios. Improper acid-treating technique could in part be remedied by a careful study of drilling time and well conditions before attempting the acidization process.

Drilling time of the pay section and above the casing seat, plus the natural production information will give the operator some good ideas as to porosity conditions and the general problems and dangers of acid treating. Wells in which the total depth is in soft pay and relatively close to the water level, can easily be acidized into bottom water when no seal is placed in the bottom of the hole. As mentioned above, the danger of acidizing into bottom water is eliminated by stopping the wells on hard shells, provided they can be found at reasonable depths above the water table.

(D) Determination of Shot Positions

Nitro-glycerin shots are too often placed in wells with little or no knowledge of the depths and thicknesses of the porous zones. Shooting of impervious limestone beds does not increase production and may impair the bore hole for future remedial work, such as the running of packers and liners.

Drilling time will furnish the operator with a knowledge of the formation so that the shot may be placed opposite the porous zones. Higher increases in production should be realized with such a procedure.

Use of Drilling Time for Remedial Work

(A) Plug Back Jobs

Due to the porous nature of the reservoir rock in the Goldsmith pool, plug-back jobs are usually not successful until the plug-back material comes up the hole to an impervious shell. This is caused by water leaking around the plug.

Well No. 7, Figure 7, was acidized into bottom water during the second acid treatment. An effective shut off was not secured until the hole had been plugged back to the hard shell indicated by the drilling time at 4210 feet. Due to the apparent vertical porosity present below this hard shell, water intrusion continued until the lead plug was built up to the impervious shell. Had it been known that this condition would continue, one cement "squeeze" job up to the hard zone at 4210 feet would probably have secured a shut off easier and with less expense.

(B) Packer Seats and Liners

Information may be gained from drilling time to pick the point where packers and liners should be set to secure lower gas/oil ratios. Packers give better results when they are set on hard shells which separate gas and oil horizons. The information for selecting packer seats may be used for selecting casing points. Well No. 2, Figure

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2, shows how drilling time could be used in selecting a packer seat. Had there been too much gas in the formations above the hard shell from 4160 to 4169 feet, the logical position for a packer seat would have been opposite the hard shell shown by the drilling time.

(C) Pipe Perforations

There is sufficient gas dissolved in the oil in the Goldsmith pool at present to flow practically all the wells, however, other lifting agents will be resorted to in later years of the pool's life. In the free gas cap areas, perforation of the pipe opposite the gas zones will furnish energy for lifting purposes.

Summary and Conclusions

Drilling time provides supplementary information on rotary wells. With the elimination of guesswork, more and well defined drilling supervision, and a greater use and development of automatic recording devices on rotary rigs, drilling time appears to hold great possibilities for improved geological and engineering data.

Drilling time is applicable to other areas in addition to the Permian Basin dolomitic limestones. Its applicability to formations other than limestone are not known to the writer, but warrants careful testing.

From the standpoint of cost, drilling time represents the cheapest kind of well information.

Acknowledgments

The writer is grateful to Landreth Production Corporation, Fort Worth, Texas, for the privilege and permission to make this study public.

The efforts and cooperation on the parts of Arrow Drilling Company of Tulsa, Oklahoma, Olson Drilling Company of Tulsa, E. B. Goodsen Drilling Company of Tulsa, and E.C.Norwood Drilling Company of Wichita Falls, Texas, were appreciated by the writer and his company.

Particular thanks is due Mr. Addison Young, Landreth Production Corporation, Midland, Texas, and Mr. E. A. Wahlstrom, Goldsmith Pool Engineering Committee, Midland, Texas, for their interest, constructive criticism and suggestions.

Permian Basin

[*Continued from page 38*]

wells are equipped with 2½-inch tubing. Common working barrels are generally used although insert pumps are installed in some of the smaller wells. In the Hendrick and a few other limestone fields the wells produce as high as 98 or 99 percent salt water. Casing pumps and bottom-hole electric-driven centrifugal pumps are used in some wells.

Most wells now going on the pump in such fields as McCamey produce very little water and have allowables of only 20 or 30 barrels per day. Small geared units and 5 to 7½ horsepower electric motors can be installed as surface equipment with low investment and operating cost. Gas engines are operated under exceptionally severe conditions in West Texas due to the exceptionally hard water and the hydrogen sulfide content of the gas. Recent developments which may assist in combating these conditions are radiator cooling units using distilled water and gas scrubbers providing soda ash removal of hydrogen sulfide, a sulfide determination service being furnished.

Gas Lift

The large gas reserves in the Permian Basin make gas lift practical in many fields. The general practice is to take the input gas from high-pressure gas wells and distribute it under well pressure without compression. Lift valves are generally used in connection with this type of artificial lift. There have been relatively few stripper wells operated on gas lift. Several intermitter settings have been made in wells barely capable of making their allowables. In the Hendrick field wells producing as much as 11,000 barrels of fluid per day are operated by gas lift. These wells are ordinarily produced through the casing with input gas-fluid ratios as low as 30 cubic feet per barrel. Some operators now have in use a bottom-hole pressure bomb run on tubing to determine the working fluid level that has proved to great advantage in placing and selecting gas lift equipment.

The present well allowables are not much greater than the 20- or 25-barrel per day marginal allowable, which naturally imposes the necessity of reducing the initial and lifting costs of production. In this connection there has been a trend toward the use of smaller casing and tubing, and many wells are now being equipped with 5½-inch oil strings and 2-inch tubing. This trend also reduces drilling costs in many ways. Since a majority of the wells in the Permian Basin are now flowing, artificial lift and workover methods are not as important now as they will be later.

The author acknowledges the help rendered by J. Ben Carsey, Division Geologist, R. S. Dewey, Division Petroleum Engineer, and W. L. Crothers, Petroleum Engineer, Humble Oil & Refining Company, West Texas Division, and E. A. Wahlstrom, Chairman Goldsmith Pool Engineering Committee, in the preparation of this paper.

[1] "Petroleum and the Future of the Permian Basin." Address delivered by John R. Suman, vice president of the Humble Oil & Refining Company, at the annual meeting of the Midland Chamber of Commerce Friday, January 21, 1938.

[2] Charles B. Carpenter and H. B. Hill, "Petroleum Engineering Report, Big Spring Field and Other Fields in West Texas and Southeastern New Mexico," United States Bureau of Mines, R. I. 3316. Dean E. Winchester, "The Oil and Gas Resources of New Mexico; New Mexico School of Mines, State Bureau of Mines and Mineral Resources, Bulletin No. 9."

[3] H. P. Bybee, et al, "Detailed Cross Section from Yates Area, Pecos County, Texas, into Southeastern New Mexico." Bulletin American Association Petroleum Geologists, Vol. 15, No. 9, September, 1931, pp. 1087-1093.

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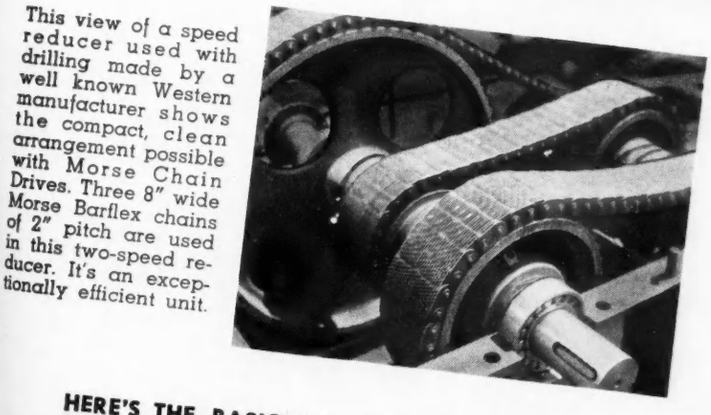

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Marine Drilling On the Gulf Coast

By I. W. ALCORN
Division Petroleum Engineer, The Pure Oil Company, Houston, Texas

THE author describes briefly typical drilling locations in submerged areas including marshland, inland lakes and open Gulf, and gives operating difficulties encountered in such operations, with comments on foundations and equipment applicable to the various types of drilling sites, including marine equipment such as houseboats, barges and tugs, the damage to structures by heavy storms, and the difficulties in changing crews at such times. The relative numbers of marine wells in Louisiana and Texas in 1937 are given.

This paper was presented at the Spring Meeting of the Southwestern District, A.P.I. Division of Production, Fort Worth, Texas, March 24-25, 1938.

The statements and opinions expressed herein are those of the author, and should not be construed as an official action or opinion of the Institute nor of this publication.

THE Gulf Coast Area is extremely low and flat and contains many shallow inland submerged lands. In addition to the submerged lands, there are extensive swamps and marshes which are not easily accessible, particularly with heavy drilling machinery. Due to the varying nature of the actual location for a well, it is necessary to analyze thoroughly the topographic conditions of the area in which the well is to be drilled.

A recent paper[1] by Herbert and Anderson covered in excellent detail the classifications of different structures and their adaptibility to various soil conditions. For purposes of illustration, the present writer here cites three specific marine situations with which he is familiar, and which typify extremely varied types of Marine Operation.

In one instance the well was located about 3 miles from the mainland in about 1 or 2 feet of water, which rendered it very inaccessible. Obviously the shallowness of the water was a decided disadvantage, being much too shallow for the movement of boats and barges. In order to render this location accessible, it was necessary to carry on negotiations for the building of a dock and the dredging of a canal from the dock location to the well location. This necessitated the movement of 60,000 cubic yards of material in dredging the canal, which was 50 feet wide and 4 feet deep measured from mean low tide. Much of this dredging was in hard packed sand, and a portion of the canal required blasting. Variations of this condition might be one in which the well is located in a few inches of water and where the construction of a board road to it would be the most practical way of contacting it.

With the second type of marine location, which is probably the most frequent type, the well location was in one of the inland lakes. These lakes are quite numerous, particularly in the Louisiana Gulf Coast. As a rule, most of the lakes are between 4 and 7 feet in depth, which is sufficient to carry on a marine drilling operation with tugs and barges which require a minimum water depth of approximately 4 feet. This type of location, however, represents the easiest and most economical of the marine operations in which to conduct operations, it being necessary to construct a loading dock at some convenient point and handle all of the movement of men and materials with a minimum of effort and expense. Many of these inland lakes are also readily accessible through the Intracoastal Canal so that it is often possible to load material from any one of the various coastal points and barge such material direct to the location, thereby eliminating unnecessary handling.

The third type of location, and one which has come into prominence during the past year, is where well locations are made in the open waters of the Gulf. This type of location presents entirely new problems so far as marine operations have been concerned on the Gulf Coast. More strict regulations cover such operations, and practically none of the present inland marine transportation equipment is suitable for open water work, as such equipment must comply with government regulations for coastwise vessels.

The slope of the floor of the Gulf in most cases is very gentle, being approximately one foot in 450 feet at Cameron. This condition works a considerable hardship, due to the fact that the marine equipment required in this work is generally not able to get within a quarter mile of the shore line. As an example, the Superior Oil of California and The Pure Oil Company, joint operation in the Gulf of Mexico, have a location approximately nine miles east of Cameron, Louisiana. It so happens that Cameron is located at the mouth of the Calcasieu River and offers a well protected and navigable place to dock. While this location is probably more desirable than most locations to be found in the open water, it is still necessary to negotiate a 10-mile boat trip in

[1] W. F. Herbert and H. E. Anderson: "Foundations for Marsh Operations"; Spring Meeting Southwestern District, A.P.I. Division of Production, April, 1937, Dallas, Texas; "Drilling and Production Practice, 1937."

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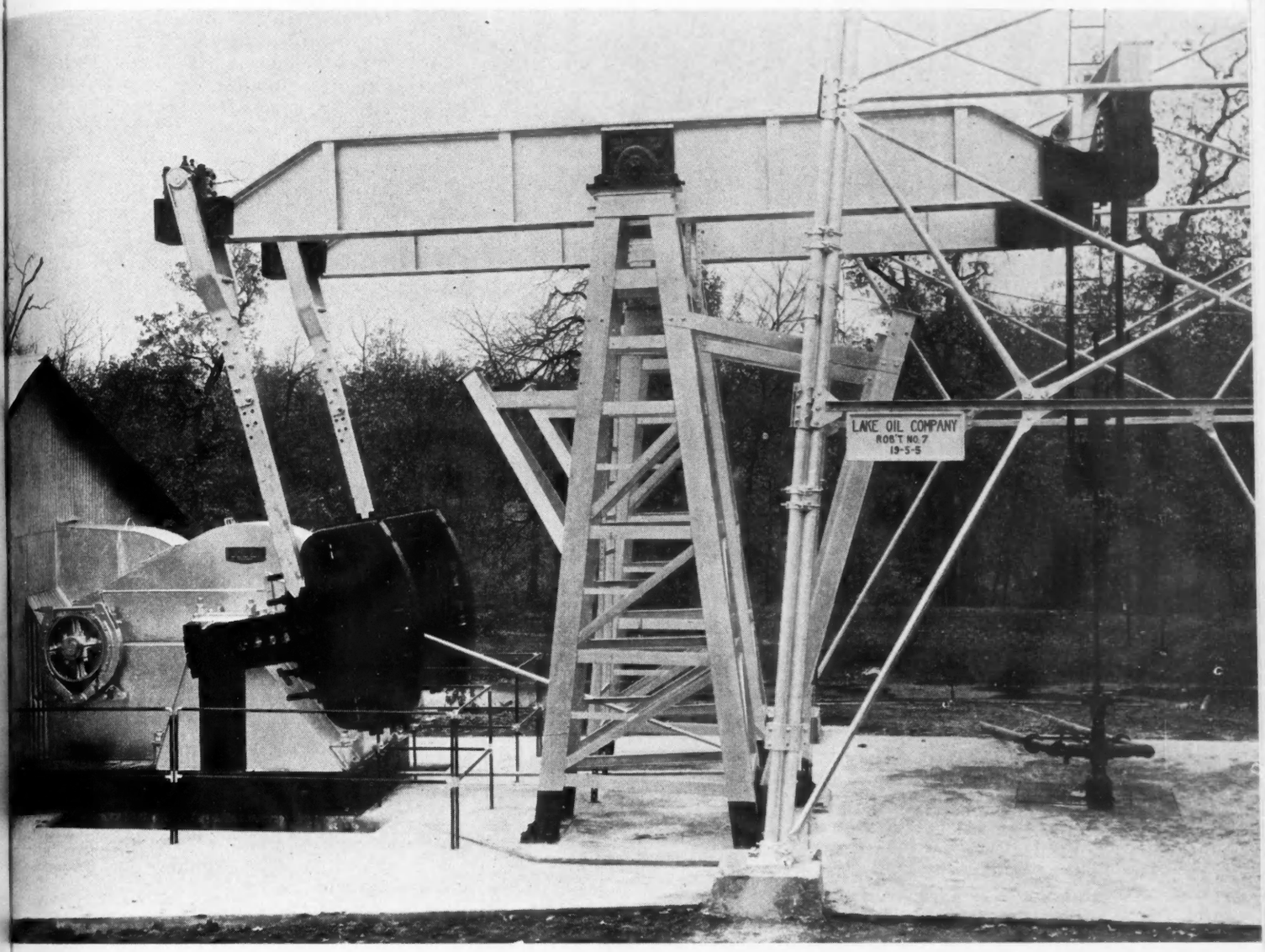

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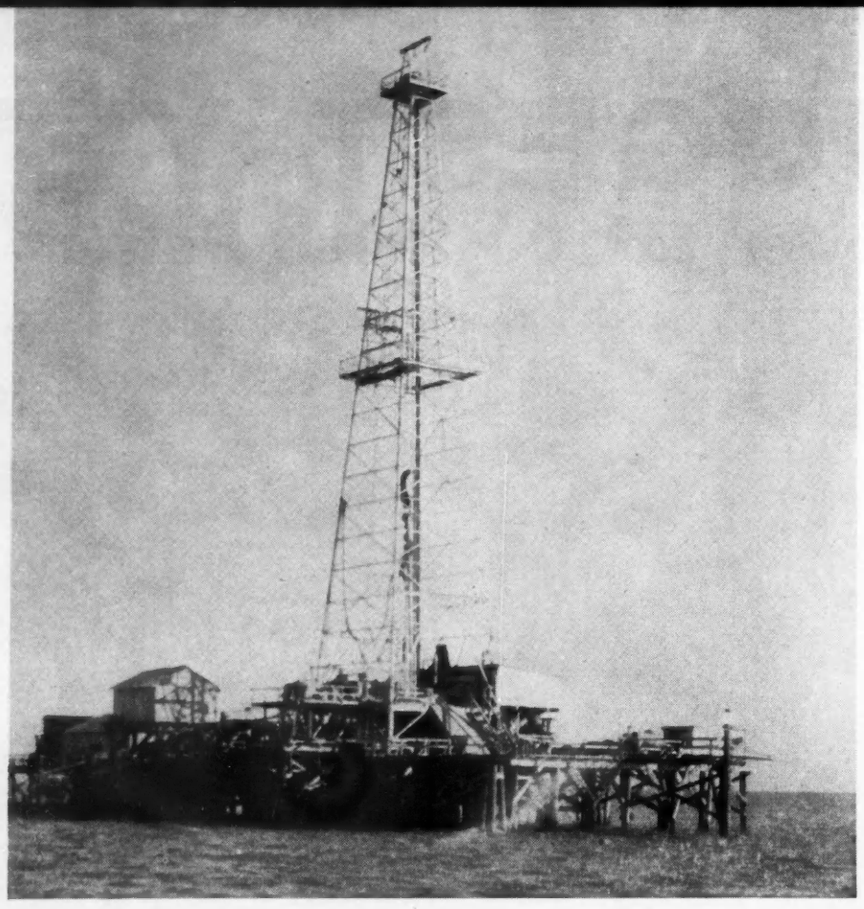


This type of structure supports the drilling in the open Gulf off the coast of Cameron Parish, Louisiana.

order to transfer the working crews. Such a one-way trip consumes easily an hour to an hour and a half time. Another extremely difficult situation which prevails on all marine locations, but particularly on the open water, is that of fog. Unless one has actually been out on the water in a dense fog, he can not fully appreciate the significance of this.

Practically all open water locations have to contend with ground swells and exceedingly rough water at times. To contact the Superior-Pure location, it is necessary to parallel the shore line. In doing this, the waves tend to strike the boat broadside, and it is significant to say that many old-time seamen have become very sea sick while making the trip. At times the pilot has to run the boat out from shore at Cameron, a distance of four or five miles, in order to head for the location on an acute angle in order to minimize the rolling of the boat.

One of the major problems in this type of location has been the matter of loading and unloading the crews after arriving at the well. On numerous occasions, after negotiating the 10 miles of rough water and finally arriving at the well, it was found impossible to load or unload a crew. A rope ladder was provided at one overhanging point on the derrick structure, but even with this it is very hazardous, with high waves, to approach close enough to the structure with a boat for the men to reach it. In this event, crews on the locations at such times would be on the derrick floor as long as two days before they were able to get off. Humble Oil & Refining Company's location, which is about midway between High Island and Sabine Pass, would necessitate transporting crews a distance of approximately 26 miles. This, of course, would be impractical. To overcome this situation, a pier was constructed from land out into the water a sufficient distance to permit navigation of their crew boat, which distance is approximately 1000 feet. This pier is used only for the transfer of working crews. Telephone communication which most of the marine operations do not have, will be established from well to pier, and will assist greatly in the operations.

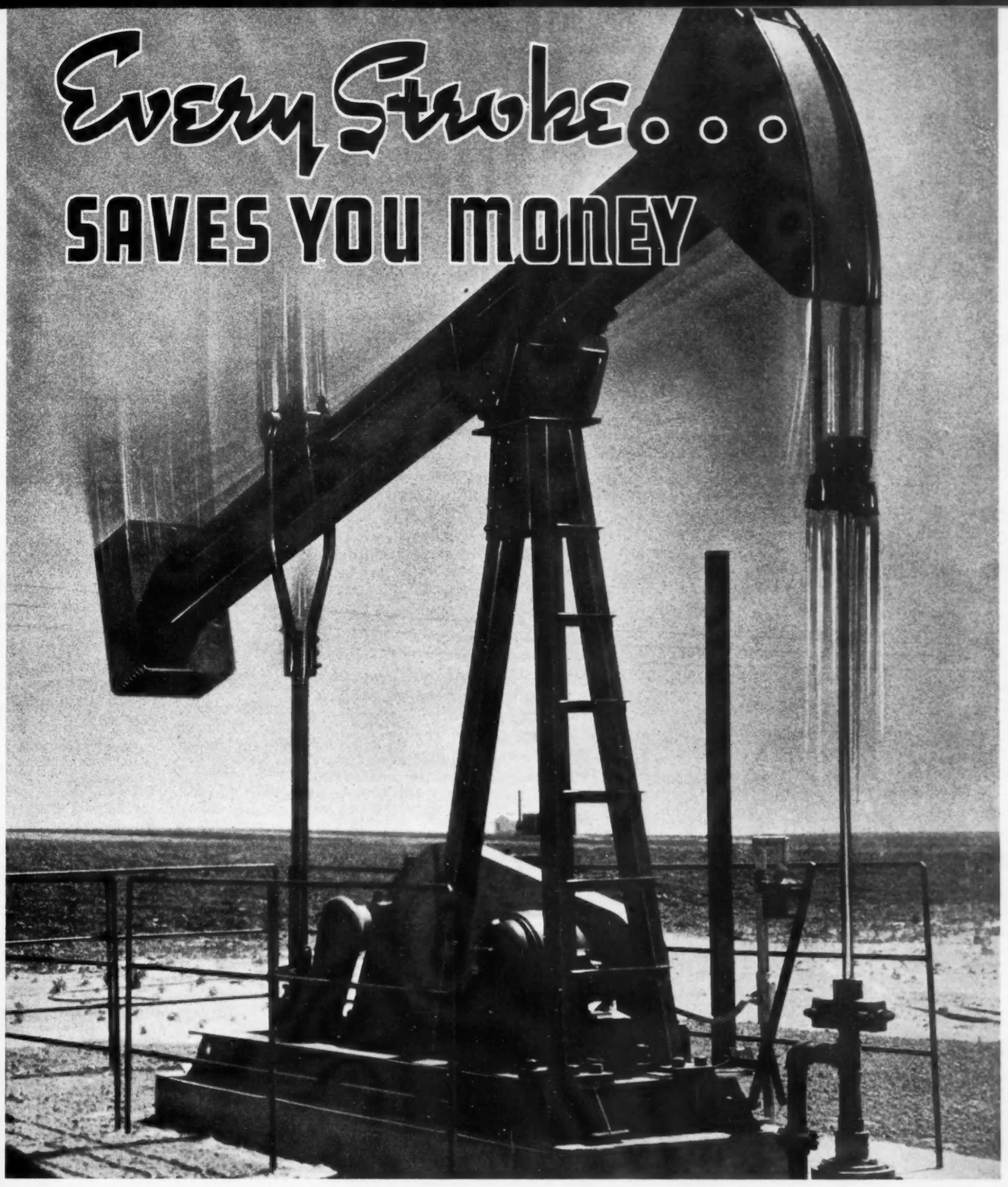
The above discussion covers exploratory wells. Once a field is located and commercial production established, then many of these troublesome factors can be permanently taken care of.

The subject of foundations was quite generally discussed in Messrs. Herbert's and Anderson's paper.[1] In general, considering the first type of well described above, which is in approximately one to two feet of water, a mat foundation would be most economical. In considering foundations, the operator must consider not only the cost of installing the foundation, but also the cost of cleaning it up. Most of these locations come under the classification of navigable waters, which in turn are under the jurisdiction of the United States War Department, and utmost care must be taken to clean up a location thoroughly and leave it, as nearly as possible, in its original condition. All piling must be removed, and shale dumps leveled off, etc. A complete mat foundation for one of the larger steam rigs, as used on the Gulf Coast, will cost installed, approximately $11,000 to $12,000.

In the second well classification above: "those located in inland lakes," wood piling has worked out quite well, and a considerable variety of combinations may be used. The subject of submerged barges has been quite thoroughly covered.[2] The Texas Company being a pioneer in this direction, and having developed this method to an unusually satisfactory degree. Some other companies have varied this method by mounting a considerable portion of their drilling equipment, such as mud pumps, slush pits and boilers on floating barges, using piling only for the derrick and pipe rack. The average cost of a complete piling structure comparable to the mat structure outlined above would be $20,000 to $25,000.

For open water exploratory drilling, wood piling has appeared most desirable to date. A structure of this kind, however, is subjected to much greater abuse from the standpoint of wave action, abrasion by boats and sand. These factors also increase the operator's hazards from the standpoint of pollution and damage to fisheries and hatcheries, beaches, etc., all of which have to be taken into consideration. An operator can not afford to subject himself to any unusual hazards in this type of location. A detailed description of such a foun-

[1] Op. Cit.
[2] G. I. McBride: "Drilling Barges"; Spring Meeting, Southwestern District, A.P.I. Division of production, San Antonio, Texas, April, 1935; "Drilling and Production Practice, 1935."
[3] I. W. Alcorn: "Derrick Structure for Water Locations"; The Petroleum Engineer, March, 1938.



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dation has been described recently by the writer[3] and will not be given in detail here. It is highly important to make proper and thorough investigation of all marine locations before deciding on the type of foundation structure, particularly in obtaining full knowledge of soil bearing values. The average cost of comparable piling structure to the two aforementioned cases is approximately $65,000 to $70,000.

For open water work some question why structures similar to those used on the Pacific Coast are not used. The principal reason is the different soil condition. On the California Coast about 11 feet of hard sand is first penetrated, then an extremely hard clay in which it is practically impossible to drive piling. These wells are also drilled in deeper water, some being in 60 feet of water. While the hurricane hazard of the Gulf is not present in California, the latter presents the possibility of earthquakes and a very severe surf condition in which the sand carried in the surf causes severe erosion of materials; steel piling in some cases being cut entirely in two within relatively short periods.

Various factors affect the type of foundation to be selected, aside from the ones above enumerated, one being the type of drilling rig to be used. For example, the Superior-Pure well was originally projected to 10,000 feet. As originally laid out, the foundation was designed for a large modern steam rig. This required an extremely large foundation. Subsequently, however, it was decided to drill this well with a large Diesel electric rig. This change eliminated the need for approximately 45 piles on which was to be located four 500-barrel fuel tanks.

In the case of the Humble Oil & Refining Company well, the projected depth is probably 4500 to 5000 feet as a maximum. For drilling purposes, it is planned to use a small gasoline-powered mechanical rig. The layout of this rig has been worked out to where it represents the acme of compactness, resulting in the necessity for an extremely small area structure. These two locations probably represent extremes in size of the location.

Selection of Type of Rig

Many variations exist as to the type and mounting of equipment used in the inland bays and lakes. There is wide difference of opinion as to the desirability of different types or rigs. Some of the factors entering into such a discussion are: The type of equipment which is on hand; the availability and cost of water and fuel; the cost of providing suitable structures to put the rig on; the projected depths at which the well is to be drilled; and the local marine characteristics of the location. Detailed analysis of the latter subject alone would unduly expand this paper so that it can only be mentioned here. Interest is constantly growing in steam-saving drilling rigs. No doubt, much improvement is yet to be made in boilers, super-heaters, feed-water heaters, insulation, power ends of slush pumps, and more efficient steam engines, all combined with improved methods of hooking them up, involving transmission equipment, etc. A steam engine for oil field drilling has been built recently with an indicated water rate of around 19 to 25 pounds. This compares with approximately 35 pounds in present engines using variable cut-off. This in turn compares with approximately 60 pounds in the conventional direct-acting equipment. The writer predicts that the future trend will be toward the more efficient equipment with a tendency toward reduction and size of boilers, and steam pressures probably not to exceed 250 pounds. With such equipment driving the hoist and power slush pump through transmission equipment, plus a small engine as at present used to drive the rotary table, very material economies can be effected. It is also believed that fuel economies very closely approximating those of Diesel engines can be made. This, combined with a much lower investment cost for equipment; simplicity of equipment, and desirability of steam around the rig, should encourage further effort toward the development of the steam-saving rig, particularly on the Gulf Coast. Other areas such as West Texas, for example, may not be in this category.

Considerable interest has been shown recently in what may be termed "slim hole" exploratory drilling. The Pure Oil Company, as no doubt other companies have also, has made detailed analyses of drilling speeds and costs. On the basis of such analyses, slim-hole drilling appears to lend itself especially well to exploratory work, both marine and land, on the Gulf Coast. This subject, likewise, in itself is sufficient for a complete paper. On this particular type of work, the Diesel mechanical portable drilling rig would appear to be worthy of considerable thought. From our own analyses, we feel that our average exploratory drilling cost with conventional steam rig can be reduced by two thirds as compared to slim-hole drilling with the portable Diesel mechanical rig.

As stated above, many other variations in set-up of equipment. such as submergible barges; combination of submergible barges and piling; and combination of floating barges and piling are used, all of which have their particular place in the pictures of economics.

Marine Equipment Required

Marine floating equipment in general for water drilling operation would consist of one speed boat; one crew boat, which can also be utilized for towing operations; an additional tug; two freight barges; one fuel oil barge; and fresh water barge, if fresh water is used and not available at the rig. It is desirable to have this equipment draw as little water as possible. As an example of a typical modern tug boat, we have an all-steel boat with 28-inch diameter wheel by 20-inch pitch; length of boat 36 feet; beam 12 feet; draft 30 inches; powered by a 6-cylinder Diesel marine engine of 75 horsepower at 1600 revolutions per minute. The boat has a speed of 10 miles per hour with no load or tow; 8 miles per hour towing an empty barge; 6 miles per hour towing a loaded barge. The actual operating cost of such a boat is approximately $1.50 per hour. The barges are ordinarily about 80 feet by 22 feet, drawing when empty about 1½ feet of water. It is desirable to maintain at the location at all times a speed boat for use in event any of the crew are injured.

For open water work the above marine equipment should be considerably larger. Preferably the tug should be short-ribbed and well protected with bumper ropes, as much damage can be done by bumping into the dolphins or other parts of the piling structure. In many cases the rubbing of boats against the piling gradually wears the pile in two.

In addition to the above listed equipment, The Texas Company operates a hydroplane, placed at

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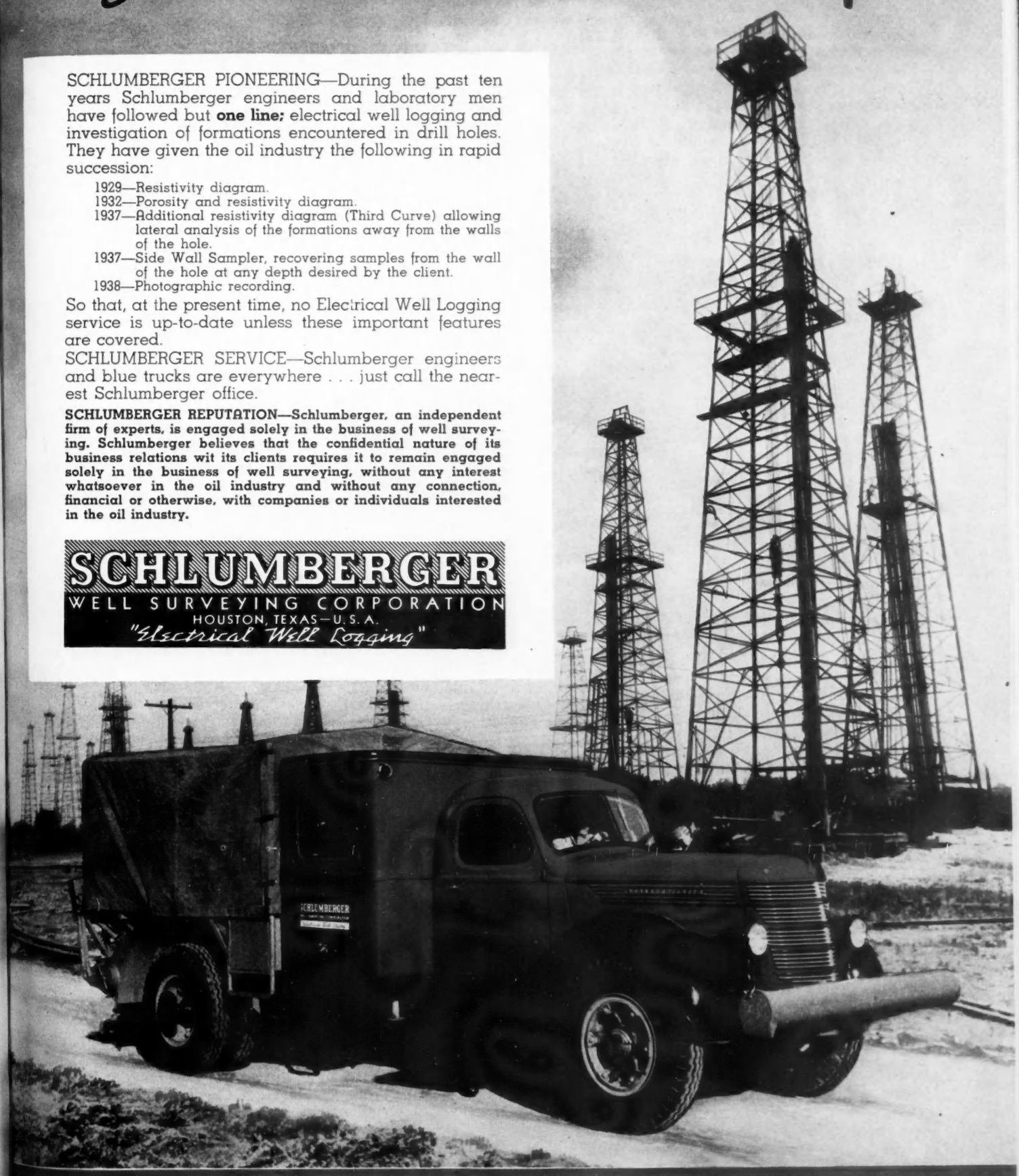

AN INDEPENDENT ORGANIZATION OF CONSULTING ENGINEERS

the disposal of the district superintendent. In this case, of course, The Texas Company has widely scattered proven development operations, in which this method of transportation has proven to be more or less a practical necessity, as the time consumed using speed boats is too great.

Because of difficulty and cost of communication, Humble Oil & Refining Company, at the Cat Fish Lake operation, which is 35 miles from the office at Lake Arthur by water, has utilized short wave radio. The Texas Company also employs this method of communication between the Houma office and water drilling wells. This method in these cases is considered indispensable and reasonable in cost.

Drilling Operations and Data

Many factors are included in a discussion of marine drilling operations. The following data give some idea as to the magnitude and relative importance of marine operations:

Total number of wells drilled in Southern Louisiana in 1937....	438
Total number of marine wells drilled in Southern Louisiana in 1937	87
Percentage of total..... 20%	
Total number of wells drilled in Texas Gulf Coast in 1937.....	1,537
Total number of marine wells drilled in Texas Gulf Coast in 1937	20
Percentage of total..... 1.3%	
Total number of wells drilled in Texas-Louisiana Gulf Coast in 1937	1,975
Total number of marine wells drilled in Texas-Louisiana Gulf Coast in 1937.....	107
Percentage of total..... 5.43%	

Aside from previously cited cases, operators are confronted with the problem of taking care of the operating crews. In the case of our Gulf operation at Cameron, this problem was simplified to the extent that accommodations were available in the town of Cameron. In the case of Humble Oil & Refining Company's Gulf of Mexico location, the crews will live in High Island which is about 8 miles from the pier. In the case of one of our operations, located in an inland lake in Southern Louisiana, a rather elaborate houseboat was equipped to accommodate 35 men with sleeping quarters; dining room; kitchen; shower; utility room for generation of electricity; water pumps, etc. Propane gas was used for fuel. In this case, the houseboat was built on a steel barge and a domestic water supply carried in the bulkheads. Constructed on top of the steel barge was a two-story superstructure. The barge was tied up at the rig during the complete operations.

The question often arises in these operations as to the possibility of using sea water for the drilling mud. It is the rather prevalent opinion that salt water does not lend itself to the making of good drilling fluid; however, due to the cost of obtaining fresh water, sea water is often used. This practice should receive considerable thought, as the use of an undesirable drilling fluid many times causes serious difficulties. This is especially true when wells are projected to depths greater than 5000 feet, and in areas where various varieties of heaving shale may occur; also in areas where use of weighting material may have to be resorted to.

Operations in general are practically the same as those encountered on land, with the possible exception of various safety precautions and devices specified by bodies interested in the protection of fisheries, hatcheries, beaches, etc. Definite regulations consist of special lighting of the derrick; installation of buoys; provisions around the rig to eliminate the loss of oil into the water by providing oil pans under certain component parts of the rig; regulations covering the cementing of casing and equipment to prevent blowouts, etc. One of the Texas Railroad Commission's requirements is the provision of positive chokes for shutting in a well in the event the entire structure is sheared off at the floor of the Gulf. The Texas Company uses this plan in Coastal Louisiana fields.

Discussion of a Development Program

The active development of fields in inland water areas has been going on for many years. Such work is more or less well known to those familiar with the Gulf Coast. The development of an oil field, however, in the open waters, presents a different picture. This is largely brought about by the excessive cost of constructing the well foundations and interconnecting piers. In order to construct a pier designed for a 20-year life, sufficiently strong to withstand severe storms, and that will permit the transportation of trucks loaded with heavy drilling machinery, the cost will be approximately $45 per lineal foot. If one were to then consider the expenditure of $65,000 to $70,000 for each well location, it would soon appear obvious that the cost of developing such a field would exceed the probable income therefrom. In an effort to minimize these costs, it would seem logical to construct central drilling locations, and inter-connecting these centralized points with such a pier as above described. While all of the details of such a program have not been developed to my knowledge, it may be said in general that 9 wells could be drilled from a central point represented by a square 78 feet on a side. This would accommodate 9 26-foot base derricks by skidding the derrick from one location to another. Wells projected to a depth of 5100 feet could be drilled on a 30-acre spacing pattern.. This would involve directional drilling on 8 of the wells, and the drilling of one straight hole in the center. Such a structure could probably be completed at a cost of not greater than $100,000 to $130,000. The directional drilling would involve a cost of approximately $2200 per well. Therefore, on the basis of $130,000 as the cost of the structure and $19,800 as the cost for directional drilling, the "per well" cost would be reduced to approximately $16,600.

It might be well to add that all docking of both pier and the structure itself should be sufficiently high above the water level to prevent waves from striking the bottom of it. As an added precaution, such docking should be so constructed that in event of sufficiently severe storms, if waves should strike the bottom, the decking would be washed off without further damage to the structure.

A minimum of crude oil storage should be maintained over the water. In general, wells would have sufficient pressure to flow directly in through a pipe line to storage tanks on shore. Such lines could also be hung on the pier structure in such a way that they would be easily accessible and observed.

The author wishes to acknowledge the many helpful suggestions received, and particularly to those who obligingly reviewed the original draft, namely: J. U. Teague of Humble Oil & Refining Company, W. F. Herbert of The Texas Company, and L. O'Donnell of Shell Petroleum Corporation.

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Vol 1. Houston, Texas, April 4, 1938 No. 3

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One producer operating 58 Nixon Surface Control Gas-Lift Units in Lopez Field, Southwest Texas, reports their downtime from all causes on these wells during February was only 2.32%. Actual downtime caused by necessary adjustments to units was only 72/100 of one percent.

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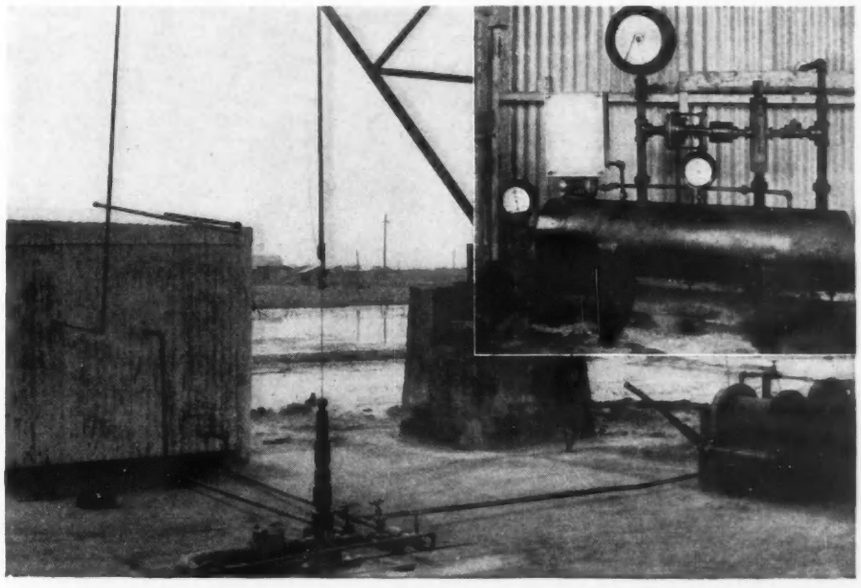

Nixon Surface Control Gas-Lift Installation. The insert photo at upper right is the Intermittent Tank Assembly, which is housed in the shed at left of main photo.

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Association Activities

Brock heads committee for disposal of waste

George A. Hill, Jr., president of Houston Oil Company, chairman of the American Petroleum Institute's general committee, Division of Production, has appointed the committee on disposal of production wastes for 1938 as follows:

M. E. Brock, chairman, Gulf Oil Corporation, Houston; D. V. Stroop, secretary, American Petroleum Institute, New York. Other members of the committee are: H. K. Arnold, Humble Oil & Refining Company, Houston; D. B. Dow, Indian Territory Illuminating Oil Company, Bartlesville, Oklahoma; E. M. Freeman, The Texas Company, Houston; Fritz Karge, Union Oil Company of California, Los Angeles; R. S. Knappen, Gulf Oil Corporation, Tulsa; Glenver McConnell, Shell Petroleum Corporation, Tulsa; A. S. Ritchie, McPherson Drilling Company, Wichita, Kansas; John A. Ritter, Sun Oil Company, Dallas, Texas; J. Samuelson, General Petroleum Corporation of California, Los Angeles; G. O. Suman, Tide Water Associated Oil Company, Oil Center, California; Wm. F. Taylor, The Carter Oil Company, Tulsa.

Petroleum Fluid Metering Conference April 7 and 8

The Petroleum Division, American Society of Mechanical Engineers, in cooperation with the college of engineering at the University of Oklahoma, Norman, announces the Petroleum Fluid Metering Conference, to be held on the university campus April 7 and 8.

All meetings will be held in the engineering auditorium and will include a study of all the types of fluid meters which might be used for measuring petroleum products; and the problems involved in metering crude oil. The conference is being held for the purpose of crystallizing the ideas on the metering of crude oil and its products.

Manufacturers of the various types of meters have been invited to display sectional models of their meters. Directors of the conference state they believe such exhibits will give a better understanding of the principles and operations of the various types of meters. It will also enable those attending the meetings to better visualize the material presented in the papers and discussions.

Program for the two-day session is as follows:

Thursday, April 7

8:30 a.m.—Registration. Lobby, Engineering Building, University.
9:45 a.m.—Purpose of Conference. W. H. Carson, chairman, Petroleum Division, A.S.M.E.
10:00 a.m.—"Viscosity and Its Effect on the Flow of Oil," J. W. Donnell, University Staff.
11:00 a.m.—"Fundamental Principles of Head Meters," E. E. Ambrosius, University Staff.
12:00 noon—"Fundamental Principles of Quantity Type Meters," S. W. Cromer, University Staff.
1:00 p.m.—Luncheon Recess.
2:00 p.m.—"History and Growth of Crude Oil Pipe Line Systems," Floyd Waterfield, Oklahoma Pipe Line Company.
3:00 p.m.—"Application and Experience in the Use of Meters for Crude Oil Pipe Line Service," Wm. G. Heltzel, Stanolind Pipe Line Company.
4:00 p.m.—"Problems Involved in the Use of Piston Type Meters for Crude Oil Pipe Line Service," Author to be announced later.
5:00 p.m.—Dinner Recess.
6:30 to 8:30p.m.—"Round Table Discussion," W. H. Carson, chairman. H. S. Bean, Bureau of Standards, assistant chairman.

Friday, April 8

10:00 a.m.—"Measurement of Crude Oil in the Burbank Field," S. I. Betzer, Phillips Petroleum Company.
11:00 a.m.—"Metering Crude Oil Under High Pressure Conditions," E. O. Bennett, Continental Oil Company.
12:00 noon—"Experimental Results Obtained in Metering Crude Oil Production," Boyd Smith and Burton Atkinson, Humble Oil & Refining Co.
1:00 p.m.—Luncheon Recess.
2:00 p.m.—"Calibration of Quantity Type Meters for Measurement of Crude Oil," R. E. Heithecker and W. B. Berwold, United States Bureau of Mines.
3:00 p.m.—"Metering of Oil from the Refinery Viewpoint," J. J. Casey, Humble Oil & Refining Co.
4:00 p.m.—"Application of Fluid Meters to Refinery Work," F. H. Rees, Continental Oil Company, Ponca City, Oklahoma.

Consideration of production problems at national gas meet

The dramatic review of America's natural gas service, from producing sand to the consumer's gas burning equipment, will be unfolded in New Orleans Louisiana, May 9-12, 1938, at the Annual Convention of the Natural Gas Department of the American Gas Association.

Of particular interest will be the various programs of the Production Section, whose chairman is W. Jennings Young, vice president, Oklahoma Natural Gas Company, Tulsa.

Outstanding authorities will deliver papers on many phases of gas production and conservation. Some of the subjects and speakers are: "What the Oil Industry is Doing About Conservation," by Hugh M. Stalcup, vice president, Skelly Oil Company, Tulsa; "The Problems of Conservation," by L. B. Denning, president, Lone Star Gas Company, Dallas, Texas; "Properties of Fluids Under High-Pressure Reservoirs Producing Small Amounts of High-Gravity Liquid," by Kenneth Eilerts, U. S. Bureau of Mines, Bartlesville, Oklahoma; and "Latest Ideas on Availability of Gas Reserves and Well Spacing," D. T. MacRoberts, United Gas Pipe Line Company, Houston.

Other subjects and speakers are: "Utilization of Natural Gas from Oil Field Operations in California," by H. P. George, Southern California Gas Company, Los Angeles; "Acidizing Gas Wells and Shooting To Increase Production," by M. E. Chapman, Tulsa, with discussion by Robert Garrett, Arkansas Natural Gas Company, Shreveport, La.; "Pooling of Royalty Interests Under Gas Producing Areas," by J. French Robinson, Peoples Natural Gas Company, Pittsburgh, Pa., and many other timely and interesting subjects, some of which are being presented to the industry for the first time.

Eastern A.P.I. district program is announced

The Eastern District of the American Petroleum Institute's Division of Production will hold its annual spring meeting at the William Penn Hotel in Pittsburgh, Pa., on Thursday and Friday, April 14 and 15.

The final program for the meeting has just been drafted.

Thursday Program

The opening session of the meeting will be at 10 a. m., Thursday, April 14, with F. E. Eckert, manager for Hanley & Bird, presiding. Eckert is chairman of the eastern district.

Following the address of welcome, which will be delivered by Dr. John G. Bowman, chancellor at the University of Pittsburgh, a paper entitled "Drilling and Operating Practices in Oriskany Sand Fields of Kanawa County, West Virginia" will be delivered by O. W. Van Petten, superintendent for Columbian Carbon Company, Charleston, West Virginia. This paper will be discussed by the following men: R. P. Walsh, general superintendent, Commonwealth Corporation; H. A. Wallace, Jr., United Fuel Gas Company; and James E. Pew, Virginian Gasoline and Oil Company.

"Public Relations in the Lease and Right of Way Departments," a paper by W. E. Ferguson, superintendent of lease and engineering departments for The Ohio Fuel Gas Company at Columbus, Ohio, will follow. John A. Thompson, chief engineer for Belmont Quadrangle Drilling Corporation, Bradford, will lead the discussion.

In the afternoon, Christy Payne, Jr., assistant to the vice president of Peoples Natural Gas Company, Pittsburgh, will preside.

The first paper at this session will be "Natural Gas Reserves Appalachian Natural Gas Province," by E. E. Roth, chief geologist of Columbia Engineering Corporation, Pittsburgh. It will be discussed by L. G. Huntley, a geologist of Pittsburgh.

Next will be a symposium on secondary oil recovery. The first paper is that of A. C. Simmons, president of Simmons Oil Corporation, Bradford, Pa., who will speak on "Recent Developments in Water Flooding." "Gas and Air Repressuring," by E. H. Tollefson, superintendent of the oil department of Hope Construction and Refining Company, Clarksburg, West Virginia, will follow.

[*Continued on page 61*]

MEN IN THE INDUSTRY'S NEWS

W. T. HOLLIDAY, president of Standard Oil Company of Ohio, in his annual report to stockholders, declared that efforts to curtail production in line with market demand in Texas and the Mid-Continent must be successful and increased gasoline consumption must take place this season if a crude price cut is to be averted. "As the matter now stands," Mr. Holliday said, "the refining branch of the industry is again undergoing difficulty due to the squeeze between low product and high crude oil prices (quite a number of unintegrated refineries have had to close), and it seems hardly possible that the present lack of parity between the raw material and the product prices can long be continued—especially in view of the fact that the Mid-Continent crude oil price level is about 25 percent above the $1 a barrel level achieved as a happy desideratum during the days of the NRA code."

ELMER JOHNSTON, Vancouver, British Columbia, has been named to the directorate of Roxana Petroleums, Ltd., Alberta producing company, to succeed V. J. Walsh, deceased.

A. R. EPPENAUER, president of Eppenauer Drilling Company, is recuperating in a Pecos, Texas, hospital after an emergency appendectomy on March 21. He recently moved headquarters from Fort Worth to his ranch properties near Fort Davis.

STANLEY COHAGAN, vice president of Argo Oil Corporation, Fort Worth, was stricken March 27 with a ruptured appendix while on a field trip in Southwest Texas. He was taken to a hospital at Alice for an operation.

HOWARD S. ROSE, of the United Natural Gas Company, has been named chairman of the utility group in the Community Fund campaign at Oil City, Pennsylvania.

W. S. FISHER, managing director of Model Oils, Ltd., Turner Valley operating company, returned to Calgary, Alberta, last week following a trip through Texas and other Mid-Continent fields. While in the southwest he contacted P. D. Moore, former member of the geological staff of Imperial Oil Company, Ltd., in Alberta, who is now operating in Texas, maintaining his headquarters at Midland.

R. H. ALEXANDER, former production foreman for Magnolia Petroleum Company at Kermit, Texas, has been named superintendent of the new Lea district for the company. He will make his headquarters at Lovington, New Mexico.

FRANCIS P. BARR, Mansfield, Ohio, is president of Barr-Wallace Company which was organized last week to engage in the oil and gas well contracting business in Ohio, Tennessee, Indiana and Pennsylvania. Offices will be maintained at Columbus. Other officers are James M. Wallace, Indianapolis, vice president, and H. S. Wollett, Columbus, secretary and treasurer.

R. H. Maples Joins Institute Production Staff

R. H. MAPLES

R. H. MAPLES, formerly division engineer for Cities Service Oil Company in East Texas, has joined the staff of the American Petroleum Institute's Division of Production as staff engineer assigned to the Dallas office. He is a graduate in petroleum engineering from the University of Oklahoma and has had several years of practical experience in the Mid-Continent.

He will assist particularly in the work of the Central Committee on Drilling and Production Practice and the Central Committee on District Activities, thus enabling the Division of Production to cooperate more closely in the work of these two important committees.

R. C. EARLOUGHER and LINCOLN M. ARNOLD, formerly with the engineering staff of The Sloan and Zook Companies, Bradford, Pennsylvania, recently joined Geologic Standards Company, Tulsa.

H. J. DeARMAN, drilling contractor of Houston, has returned to his desk after completing a business trip to the coastal region of Louisiana.

ORVILLE L. BRACE, consulting geologist of Houston, was the principal speaker at the Houston Geological Society's regular weekly meeting at the Lamar Hotel, March 21. His subject was "Oil Development in the Gulf Coast during 1937."

J. P. GASSER, with Seaboard Oil Company, Los Angeles, was a recent Houston visitor.

S. F. SHAW, consulting engineer for Westgate-Greenland Oil Company, Oklahoma City, Oklahoma, recently left for Long Beach, California, the company having completed four oil wells in the extension of the Wilmington field.

DR. THEO A. LINK, chief geologist in Western Canada for Imperial Oil Company, Ltd., and Dr. Russell V. Johnson, consulting geologist, returned to Calgary last week from the annual convention of the American Association of Petroleum Geologists held in New Orleans.

F. P. BYRNE, Calgary, heads the list of directors of Anglo-Canadian Holding and Development Company, Ltd., named by shareholders last week. Authorization was given to increase capitalization of the company from one million to three million shares of no par value stock and change the name to Anglo-Canadian Oil Company, Ltd., in line with its present policy of oil development rather than conducting operations through subsidiary companies as formerly. Other directors of the Alberta company named last week are W. S. Campbell and H. R. Milner, K. C., both of Edmonton, and C. C. Ross, M. L. A., H. A. Howard and W. G. Egbert, K. C., all of Calgary.

LINN M. FARISH, geologist of Ardmore, Oklahoma, last week discussed the International Geological Congress held at Moscow last summer at a meeting of the Shawnee Geological Society.

W. S. CAMPBELL, chairman of the Petroleum Producers Association, discussed Alberta oil development before a meeting of Vancouver, British Columbia, business men arranged by the chamber of commerce in that city.

C. B. McCLINTOCK, Oil City, Pennsylvania, geologist, discussed the geology of Pennsylvania, West Virginia and Ohio oil fields before the Rotary club at Franklin, Pennsylvania, last week.

W. A. JOHNSON, president, heads Gates Petroleum, Ltd., Winnipeg firm which will complete a test well at Pilot Mound, Manitoba, 85 miles from Winnipeg. Other officers are A. S. McDonald, director and acting secretary-treasurer, and O. B. Knight, Frederick Heap and E. P. Burns, directors.

DR. J. O. G. SANDERSON, Calgary consulting geologist, last week was named president of the Association of Professional Engineers of Alberta.

DR. RAY NEIDIG was named president and chairman of the board of Share Royalties, Ltd., Alberta producing company, last week. Other officers elected were Tom Campbell, vice president and managing director; Thomas Humphries, secretary-treasurer, and John Tully, George Ingraham and G. W. Dover.

DR. ROBIN WILLIS, formerly active in Alberta oil development and now living in Los Angeles, was a visitor in Calgary last week.

DR. RICHARD E. SHERRILL, associate professor of geology at the University of Pittsburgh and a member of the Pennsylvania Topographic and Geologic Survey, described work of the survey at a meeting of oil and gas operators held last week in Oil City, Pennsylvania. The meeting was arranged by C. B. McClintock, consulting geologist of Oil City.

C. EFRAIN BUENROSTRO, Mexico's secretary of national economy, has been made president of the government's administrative council of petroleum. Others appointed on the council are: Eduardo Suarez, secretary of treasury, vice president; Lic. Manuel Sanchez Cuen, chief official of the secretary of national economy, secretary. Directors of the council are: Juan Gray, Armando Vazquez, Ruben de la Fuente, Ing. Rafael Michel and Ing. Enrique Ortiz.

CARLOS L. CORCUERA, oil union leader of Ciudad Madero, near Tampico, has been appointed production manager of the Mexican government's oil administration board. His is the only executive position thus far filled in the board's organization, that of Vicente Cortes Herrera, ex-communications minister, as director being considered an administrative post.

NORTHCUTT ELY, Washington, D. C., attorney who has been prominent in Interstate Oil Compact affairs, has moved offices to the American Security Building.

C. ZULVER, marine superintendent of Anglo-Saxon Petroleum Company in speaking recently before the regular luncheon of the Oil Industries Club in London, said he would not be prepared to recommend yet use of Diesel engines of 3000 horsepower per cylinder for use in tankers or ocean going vessels.

K. H. SAMBROOK of the fuel oil department and D. H. Meijnen of the kerosene development department of Asiatic Petroleum Company, Limited, London, are scheduled to present a paper titled "Petroleum Fuels in Relation to Agriculture" before the Vienna sectional meeting August 25-September 2 of the World Power Conference.

P. H. HEIRING, engine research branch, Anglo Iranian Oil Company, Limited, and H. F. Jones, technical representative, International Association (Petroleum Industry), Limited, are scheduled to present a paper on "Petroleum Fuels for Small Scale Industries" before the Vienna sectional meeting of the World Power Conference August 25-September 2.

ING. FRANCISCO RAPALLINI, drilling superintendent with Yacimientos Petroliferos Fiscales, Argentina, and Socrates Broullon, with the production division of the department of mines and geology of the same organization, will spend several weeks in the Gulf Coast prior to attending the International Petroleum Exposition in Tulsa in May. Rapallini and Broullon have just completed a three-months study of California fields and drilling and producing conditions.

HOBART LAMAR of Los Angeles, recently appointed drilling superintendent for Amiranian Oil Company, planned to sail from New York March 29 for Iran. He left Los Angeles March 20.

Charlie Noble, chief scout for Superior Oil Company, Houston, is shown on the job scouting wells on the southwest flank of Orange field, Orange County.

CHARLES LAMAR, formerly with Carribbean Petroleum Company in Venezuela and more recently with Drilling Exploration Company in California, left Los Angeles late in March in company with his brother, Hobart Lamar, drilling superintendent with Amiranian Oil Company, to accept a position as driller with the latter company in Iran, where it is exploring a concession of 190,000 square miles.

SAM DYKES, formerly with Superior Oil Company in California, has accepted a position as driller for Amiranian Oil Company in Iran. He planned to sail from New York March 29.

MARSHALL MUSE, JR., Sun Oil Company, became the father of a daughter on March 9. Young Marianna is the great granddaughter of John W. Gilbert of Gilbert Oil Company and is the granddaughter of Harvey W. Gilbert of Beaumont.

A. C. HENSON, formerly in the production department, Seminole district, for The Texas Company, has been appointed scout for the central Oklahoma district of the company, replacing O. R. Shaffer who died February 12.

LLOYD SMITH, independent operator of Houston and New York City, was a visitor in Tulsa oil offices last week.

NORMAN CHANDLER, publisher of the Los Angeles "Times," was renamed as a member of the board of dicectors of Republic Petroleum Company, at a recent meeting which re-elected David R. Fairies, W. W. Diehl, Fred V. Gordon, R. E. Havenstrite, Harry H. Maddren, J. W. Pauson, Clay Robbins and C. C. Spicer. C. C. Spicer remains president; Harry H. Maddren, vice president and G. B. Knox, secretary-treasurer.

DENIS CADMAN, Huasteca Petroleum Company, Mexico City, Mexico, was a visitor in Houston last week. He is the son of Lord John Cadman, chairman of the board of Anglo-Iranian Oil Company, Ltd., London, England.

DIED:

DAVID HIRAM SNYDER, 62, of Bartlesville, Oklahoma, died of a heart attack at his farm, March 17. He had long been identified with the oil business, having started his career in the Pennsylvania oil fields from where he went into Ohio and Illinois. Snyder came to Bartlesville in 1912 where he has been located since that time. He is survived by his widow and one daughter.

CHARLES F. GARDNER, 53, land and lease representative for W. C. McBride, Inc., died at St. Louis, Missouri, March 26. Funeral services were held at Tulsa March 28. Gardner, with the company during the past 11 years, handled leasing activity in Oklahoma, Kansas, Texas, Arkansas, Louisiana and New Mexico.

DAN POLAND, 36, independent oil man of Carter County, Oklahoma, died March 26 at Ardmore. A pistol which he had been cleaning was accidentally discharged into his breast.

HARRY BRADLEY, 68, president of the Empire Gas & Fuel Co., Ltd., and active in oil and gas development in Western Pennsylvania and New York, died at this home in Wellsville, New York, March 23 of pneumonia after an illness of two weeks. His death followed by two months that of his cousin, George Bradley, of Bolivar, New York, with whom he was associated in production activities. He also headed the Bradley Producing Corporation, the Hornell Gas Light Company and the Empire Gas & Fuel Company of Pennsylvania.

L. F. ICE, 47, of Ice Drilling Company, Tulsa, died March 24 following an illness of three weeks.

WILLIAM H. STECK, 68, driller in Pennsylvania fields for 25 years, died March 24 at his home near Oil City after an illness of four years.

Association Activities

[*Continued from page 56*]

The report of the membership committee, to be made by H. D. Atha, president of Gordon Oil Company, Mt. Pleasant, Michigan, will conclude Thursday's program.

The annual stag dinner and entertainment will be held at 7 p. m. Thursday night. S. W. Meals, president of Carnegie Natural Gas Company, Pittsburgh, will serve as toastmaster.

Friday's Program

D. T. Ring, geologist for The Ohio Fuel Gas Company, Columbus, will preside at the Friday morning session. E. V. O'Rourke, associate professor at Ohio State University, Columbus, will speak on "Will There Be Enough Oil?" C. V. Millikan, chief production engineer for Amerada Petroleum Corporation, Tulsa, will deliver a paper entitled "Late Oil Production Problems in the Mid-Continent and Other Western Fields." Then will follow "Back Crank Problems and Rod Line Pumping," by J. C. Slonneger, chief engineer for The Continental Supply Company, Dallas.

Carl Young, secretary of the American Petroleum Institute's Division of Production, Dallas, will conclude this session with "Secretary Remarks."

The afternoon session on Friday will find J. J. Schmidt, general superintendent of the field department for The East Ohio Gas Company, Cleveland, Ohio, presiding.

"Oil Development in the Central Part of the Illinois Basin," by R. W. McIlvain, Jr., manager of the Illinois Production Division of The Pure Oil Company, Olney, Illinois, will be the first paper Friday afternoon. It will be followed by F. W. Freeborn, Jr., petroleum engineer for Adams Oil & Gas Company, Houston, who will discuss "Oil Development in the Western Part of the Illinois Basin."

"New Kentucky Oil Fields," by Iley B. Browning, geologist, Ashland, Kentucky, follows and is to be discussed by H. A. Sprowls, Kentucky Natural Gas Company, Vincennes, Indiana.

"Geology of Michigan Oil Fields," by Dr. R. A. Smith, Michigan state geologist, Lansing, Michigan, is another paper.

The meeting will be concluded with the report of the nominating committee and annual election of officers.

Electrical and communication equipment display at Houston

The committee in charge of arrangements for the annual meeting of the Petroleum Industry Electrical Association which convenes at Houston April 13 for a three-day session announces that 38 exhibitors have reserved space for showing electrical and communication equipment.

East Texas Chapter A.P.I. meeting and dance

The next regular meeting of the East Texas Chapter of the American Petroleum Institute will be held in Kilgore on Tuesday evening, April 12, in the high school auditorium. The dinner at 6:15 will be at the Kilgore Hotel.

W. L. Childs, Reed Roller Bit Company, Houston, will speak on "The Petroleum Industry and Its Relation to Business," followed by J. L. Risinger, of Magnolia Petroleum Company, Dallas, who will discuss "Safety in Oil Field Operations."

A dance for A.P.I. members only, has been arranged for Thursday evening, April 14, at the Air Port Night Club at Kilgore. The attendance will be limited to A.P.I. members and their ladies.

Tulsa A.P.I. Chapter meeting April 5

The Northeast Oklahoma chapter, American Petroleum Institute, will hold another of its regular monthly meetings April 5 at the Mayo hotel in Tulsa. Preceding the meeting, members and their guests will visit the Shaffer Specialty Company plant.

At the evening meeting, beginning at 8:00, two and possibly three drilling engineers will lead a discussion of the general subject, "Exploratory Drilling —Late Developments and Future Possibilities." Special attention will be given the portable and semi-portable drilling units. Slides supplied by Franks Manufacturing Company will be used to illustrate parts of the talks.

The National Supply Company will present a sound motion picture, "Building of the San Francisco Golden Gate Bridge." The film is sponsored by the John A. Roeblings & Sons Company.

Plans for the meeting are in charge of George M. Vandaveer, of E. H. Moore, Inc. F. W. Floyd, vice president of Carter Oil Company at Tulsa, is chairman of the chapter.

Interstate compact to meet April 29-30

The next meeting of the Interstate Oil Compact Commission will be held in Wichita, Kansas, on April 29 and 30, according to an announcement made last week by Ernest O. Thompson, chairman of the commission.

Alexander Sachs and Joe Pogue, New York bankers, R. A. Steinmayer, Tulane University professor, and F. B. Plummer, Texas University professor, have been invited to speak on economic problems effecting the oil industry. It is expected that these talks will have much to do with the extended drilling program which some economists say is a serious threat to the economic welfare of the industry.

Thompson pointed out that this would be the first time that economic problems would be brought before the commission at meetings of this kind.

Pacific Coast A.P.I. meeting April 19

The American Petroleum Institute, Division of Production, Pacific Coast District, will hold its annual spring meeting at the Biltmore Hotel in Los Angeles on April 19. The program for the day has been divided into three sections: morning session at 9:30 a. m.—drilling practice; afternoon session at 2:00 p. m.—production practice, and evening session—dinner at 7:00 p. m. All sessions will be in the Biltmore Bowl.

Invitation has been extended to all interested oil men, regardless of affiliation with the Institute, and it has been requested that all who will attend make early reservation for the dinner session for which there will be a charge of $1.75 per person, and remittance should

Rules and regulations to govern the Safety Day Meet at the International Petroleum Exposition at Tulsa, May 14 to 21 have been formulated by the safety committee under direction of J. D. McCamey, director of the safety department of Carter Oil Company. Safety Day is May 20 and the preceding day will be taken up with a conference for all men of the safety departments of the industry. The committee includes, front row left to right: J. W. Savage, Mid-Continent Petroleum Corporation; H. W. Boggess, Sinclair Prairie Oil Company; T. A. Lyttle, Cities Service Oil Company; D. J. Wallace, Sinclair Prairie Oil Company; L. E. Jennings, Stanolind Pipe Line Company; (standing), A. W. Letson, Jr., Mid-Continent Petroleum Corporation; H. T. Markee, Phillips Petroleum Company; F. K. Dalrymple, Tide Water Associated Oil Company; and McCamey.

accompany reservation, checks being made payable to Wm. G. Corey, treasurer.

Program for the meeting follows:

Morning Session

9:30 a.m.—Drilling practice.

"Safety in the California Petroleum Industry," by J. C. Hoyt, petroleum safety engineer and inspector, Bureau of Industrial Accident Prevention of Industrial Accident Commission.

"Vocational Training," by J. C. Beswick, chief of Bureau of Trade and Industrial Education, State of California.

"Recent Pressure Drilling at Dominguez," by Sam Grinsfelder and Jan Law, Union Oil Company of California.

"Oil Well Cement," by Gene Davis, The Texas Company.

Afternoon Session

2:00 p.m.—Production practice.

"Tentative Equilibrium Constants for Light Hydrocarbons," by B. H. Sage, B. L. Hicks, and W. N. Lacey, California Institute of Technology.

"Practical Use of Instruments in Studies of Pumping Wells," by Ned Clark, H. E. Dangberg, and Paul L. Kartzke, Shell Oil Company.

"Production Problems in the Wilmington Field," by C. J. Dean, General Petroleum Corporation of California.

Evening Session

7:00 p.m.—Dinner.

"Dollars and Sense," by R. K. Davies, vice president, Standard Oil Company of California.

Safety Council section has Houston program

Over 200 safety engineers, petroleum engineers and oil company executives convened at the all-day sessions of the Gulf Coast Division, Petroleum Section, National Safety Council, Thursday, March 31, at Houston. The meeting, conducted by William Grant, Jr., chairman of the Gulf Coast Division, was comprised of the presentation of a group of papers covering various oil refining and oil producing problems from the accident-prevention viewpoint.

L. J. Weiler, safety supervisor, Humble Oil & Refining Company, Baytown, presented a paper on "Selling Employes on the Use of Protective Equipment," and discussion of this paper was led by Tom Katy, safety engineer, Standard Oil Company of Louisiana, Baton Rouge. James Harrop, assistant superintendent, Baytown refinery, Humble Oil & Refining Company, presented "Hazards in Handling Liquefied Petroleum Gases," and discussion of this topic was led by A. W. Breeland, safety supervisor, Lone Star Gas Company, Dallas. "Giving Safety Instructions in Connection with Job Training" was the topic discussed by E. R. Cunningham, assistant general superintendent of pipe lines, United Gas Public Service Company, with following discussion led by John Cuthreil, Gulf Coast safety engineer, Humble Oil & Refining Company, Houston. Following presentation of this program in the morning the meeting was addressed by Henry W. Boggess, supervisor of safety, Sinclair Prairie Oil Company, Tulsa, who is also chairman of the Petroleum Section of the National Safety Council.

The afternoon program was given over to rotary drilling. "Moving Rigs" was the subject presented by Antum Cuthrell, district petroleum engineer, Gulf Coast division, North Crowley, Louisiana, Humble Oil & Refining Company, who used motion pictures to show latest development of equipment for rig-moving jobs. Discussion of this paper was led by T. S. Maffitt, personnel and safety department, Houston Oil Company, Houston. J. K. Butler, petroleum engineer, The Texas Company, Houston, discussed the problems encountered in setting up rigs with subsequent discussion led by George Carpenter, Gulf Coast safety engineer, Humble Oil & Refining Company. "Making Trips" was the topic discussed by M. L. Cashion, assistant superintendent, Gulf Coast production, Gulf Oil Corporation, Houston, and his paper was discussed by Lee Conner, safety engineeer, The Texas Company, Houston. In the absence of H. L. Edwards of Edwards Drilling Company, Houston, Charles Swanner, Magnolia Petroleum Company, San Antonio, presented Edwards' prepared paper on "Handling Pipe" with subsequent discussion led by Crymes Pittman, safety engineer, United Gas Public Service Company, Shreveport.

California agency to meet in April

Los Angeles.—The annual meeting of the Oil Producers' Agency of California will be held the second or third Wednesday in April at which time a report for the ensuing year will be heard from the nominating committee.

At the last regular meeting in Bakersfield, March 11, the nominating committee was appointed to select 11 directors for those whose term expires this month.

The agency, with 300 California companies comprising its membership, holds at least one meeting a year in Bakersfield where it has a strong membership, thus providing members the opportunity for exchanging views regarding the state oil industry's problems between Los Angeles basin and San Joaquin Valley operators.

Oklahoma geologists make field trip

Oklahoma geologists April 2 took a field trip through Pottawatomie, Seminole and Hughes Counties, studying geologic showings from the bottom of the Permian to the top of the Calvin sand. The trip, sponsored by the Shawnee Geological Society, started in the old and revived sectors of the Greater Seminole field from Shawnee, through Earlsboro, St. Louis, Wewoka, Holdenville and Calvin. A meeting was held at Shawnee April 1 preceding the trip, at which time Robert H. Dott, direcor of the state geological survey, conferred with geologists.

Carthage, Texas.—Union Power & Heat Company is reported planning a 6000-foot test on a block of 800 acres it holds in the John H. Gibson Survey, Panola County, northeast of Carthage, and east of Glassell & Glassell's two gas-distillate wells.

Allowable

[*Continued from Page 16*]

been supplying, without permitting an outlet for the independent refiner, then stocks must increase or refineries close down.

"A practical method of permitting those developing a natural resource so important as petroleum to insure an adequate supply of its products and a proper conservation of its production would be to authorize voluntary agreements within the industry, subject to the approval of a proper Federal agency.

"Under such a policy the smaller units of the various branches of the petroleum industry would be given their proper share of the market. Under such a policy we would have an orderly domestic production of crude petroleum and a proper regulation of the supply from imports. These agreements would be in the public interest. They would protect the consumer, they would give that certainty which is necessary for long range planning.

"If those in the industry could get together, under supervision, and develop a practical program without the danger of being indicted because they did agree upon some helpful measure promoting conservation and protecting those smaller units which furnish the necessary competition in the industry, then a long step would be taken toward industrial security and out of the present depression."

Schuler allowable is 16,900 barrels

The allowable order that went into effect April 1 for the Jones sand (lower Marine) wells at Schuler, Union County, Arkansas, gave the field an allowable of 16,900 barrels daily, or 650 barrels per well. The field allowable is based 50 percent on acreage and 50 percent on bottom-hole pressure. Total acreage allotted to oil wells in that horizon is 513.32 acres, the acreage factor being one acre equals 16.4614 barrels. The sum of bottom-hole pressures is 84,597 pounds or an average of 3254 pounds.

The Miller County, Arkansas, part of Rodessa was given 15,000 barrels based half and half on acreage and bottom-hole pressure. The total acreage allotted to oil wells is 1280.1 acres, the factor being 5.51413 barrels per one acre. The sum of the bottom-hole pressures is 73,540 pounds. Eight wells were classed as Hill sand gas wells and given a gas allowable.

Muskogee.—Oil, gas, lead and zinc mining leases totaling 10,536.47 acres will be offered for sale at public auction here April 7, beginning at 10:00 in the office of A. M. Landman, superintendent for the Five Civilized Tribes. The sale notice reveals 10,403.46 acres are for gas and oil; 110 acres for lead and zinc mining; 20.48 acres are under the head of fee land sale of unallotted tribal lands of the Choctaw and Chickasaw nations and 2.53 acres on an abandoned railroad right-of-way, also in the Choctaw and Chickasaw nations. The 146 tracts are located in 18 counties.

Holding Steady

Crude price stability helped by continued strength of refined oil prices; control efforts lowering stocks.

THE market situation in the oil industry has continued comparatively good, and no important change is currently in prospect.

As a whole, the market has not materially changed its position in the past 10 days or so, although some prices have increased slightly while others have declined a little.

Gasoline prices at the refineries remain steady at the higher levels to which they rose within the past several weeks, in anticipation of the higher freight rates which became effective March 28.

Natural Gasoline Steady

Natural gasoline also is steady at somewhat higher levels. And kerosene prices are tending to rise in response to steadily increasing inquiries.

The markets for fuel oils continue to represent an unfavorable phase of the market situation. Inasmuch as the business decline has caused continued stagnation of industrial activity, the demand for the heavier fuel oils remains comparatively light. And weakness of prices has been the result. The lighter fuel oils also have been, lately, in relatively small demand, and prices of those oils have gradually worked lower.

Crude Oil Markets

The crude oil markets have remained generally steady, and no important change is indicated for the immediate future.

The crude markets have been somewhat bolstered by the comparatively favorable performance lately of the refined oil markets. And most of the factors in the general statistical situation of the industry are at present conducive to steadiness of the crude markets. However, there have been some signs that control of crude oil production may be somewhat loosened in coming months, and this threat naturally involves adverse implications.

Crude Production Control

California's regulation of crude production, through the voluntary action of producers and without benefit of state proration, is not proving quite satisfactory, and the state output has reached uneconomic proportions.

In the Mid-Continent, the leading oil producing states have planned to continue exceptionally strict control of crude production during April, as in earlier months this year; and such action will assure relatively good crude control for the nation as a whole.

However, in connection with the fixing of allowables for April, some of the producers in the Mid-Continent states indicated impatience with the unusually strict control that has prevailed lately. It appears, therefore, that the conservation officials of the Mid-Continent states henceforth may encounter some difficulty in properly holding down production.

Gasoline Situation Better

Further encouragement has been offered by the continued improvement in the gasoline situation.

In fact, the recent improvement of gasoline prices probably resulted from more satisfactory conditions in the gasoline market as well as from the higher freight rates.

Noteworthy was the fact that gasoline stocks showed a decline in the week ended March 26, after having increased steadily and sharply in preceding weeks. From the all-time peak of 93,192,000 barrels reached on March 19, the gasoline stocks came down more than 300,000 barrels, to a total of 92,858,000 barrels as of March 26. At the latter level, the gasoline inventories were only 11.2 percent larger than on the comparable date a year previously. Some weeks ago, the gasoline stocks were holding consistently around 20 percent above the levels of a year previously.

It is true, however, that the gasoline stocks still are not in line with the recent less favorable trends of consumption. For the gasoline demand lately has been running very little above the levels of a year ago.

Figures on output of wells and re-

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	83,538,000	96,591,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 29	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 5	3,316,450	3,155,000	304,494,000	86,484,000	118,619,000
February 12	3,324,500	3,150,000	304,915,000	87,813,000	119,293,000
February 19	3,369,250	3,150,000	305,219,000	89,774,000	119,948,000
February 26	3,322,800	3,170,000	305,167,000	90,719,000	120,958,000
March 5	3,339,700	3,130,000	304,527,000	92,151,000	122,471,000
March 12	3,382,100	3,100,000	305,566,000	93,084,000	122,818,000
March 19, 1938	3,433,550	3,080,000	306,380,000	*93,192,000	122,067,000
March 26, 1938	3,405,600	3,080,000	.....	92,858,000	122,969,000
March 27, 1937	3,431,300	3,060,000	†291,555,000	83,538,000	96,591,000
Change in past year.	—0.7%	+0.7%	+5.1%	+11.2%	+27.3%

* All time peak. † Stocks, March 20, 1937.

fineries continue favorable. United States crude oil production, in the week ended March 26, averaging 3,405,600 barrels daily, was 7/10 of 1 percent lower than in the corresponding week last year.

Refinery operations have continued similarly moderate. In the week ended March 26, crude oil runs to stills averaged 3,080,000 barrels daily, which was 7/10 of 1 percent more than in the similar period a year ago.

Crude Stocks

Inventories of crude oil continue to represent a satisfactory condition. Total stocks on hand in the United States on March 19 amounted to 306,380,000 barrels, or 5.1 percent more than on the corresponding date one year previously.

Fuel Oil Stocks

Fuel oil stocks continue to represent the most unfavorable factor in the market situation. Total stocks of fuel oil on hand March 26 amounted to 122,969,000 barrels, or 27.3 percent more than those held one year previously.

Natural Gasoline

Natural gasoline, grade 26-70, was priced generally in the Mid-Continent markets, f.o.b. refineries, at 2½ to 2⅝ cents a gallon, and sales were reported at 2½ cents f.o.b. Breckenridge, Texas.

Refinery Prices for Gasoline

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below 4⅜ to 4½ cents a gallon; 63 to 69 octane, 4⅝ to 4¾ cents; 67 to 69 octane, 4⅞ to 5 cents; and 70 to 72 octane, 5¼ to 5½ cents.

Corresponding prices in the Chicago market were as follows: 4¼ to 4⅜ cents, 4⅜ to 4⅝ cents, 4¾ to 4⅞ cents, and 4⅞ to 5¼ cents.

In East Texas the most common gasoline, 60-62 400 end-point, was priced generally around 4½ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4⅛ to 4¼ cents a gallon for the 41-43 water white grade, and from 4⅜ to 4½ cents for the 43-44 water white grade. Corresponding prices in the Chicago market were 4⅛ to 4¼ cents and 4¼ to 4½ cents.

Fuel Oils Steady

Fuel oil prices were mostly unchanged. In the Chicago market range oil was priced from 3⅞ to 4⅛ cents a gallon. The No. 1 white oil was priced from 3⅞ to 4⅛ cents, and No. 1 straw from 3¾ to 4 cents. No. 2 straw was 3⅝ to 3⅞ cents and No. 2 dark from 3½ to 3¾ cents. No. 3 oil was 3⅜ to 3⅝ cents. No. 4 was $1.05 to $1.10 a barrel to domestic consumers and 95 cents to $1.10 to industrial buyers. No. 5 oils were 70 to 80 cents for domestic and 65 to 75 cents for industrial sales. The No. 6 oil was quoted to the usual industrial customers at 47½ to 60 cents a barrel.

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields is shown on page 66. This schedule will appear only in the first issue of each month.

Continental building South Louisiana line

Lake Charles.—Continental Oil Company has started construction of a 6-inch, 12,000-barrel daily capacity, pipe line from Villa Platte, Evangeline Parish, to Tepetate, Acadia Parish—29.5 miles.

This new line will tie into other lines at Tepetate and the oil from Villa Platte will be carried to Continental Oil Company's deep water terminal at Lake Charles.

Continental Oil Company has lines running from Abbeville, Jennings, Tepetate and Villa Platte to the Lake Charles terminal.

Summary of Wells Completed in the United States Week Ending April 2, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	....	....	....	....	.....	....	1
Arkansas	7	6	....	1	8,378	56	18
California	17	10	1	6	7,496	283	309
Colorado	....	....	....	....	.....	3	5
Florida	....	....	....	....	.....	....	....
Illinois	18	15	....	3	8,901	204	11
Indiana	....	....	....	....	.....	30	33
Kansas	29	25	....	4	22,344	495	532
Kentucky	17	7	7	3	219	182	51
Louisiana	15	10	1	4	4,739	281	174
Michigan	16	10	....	6	1,609	208	194
Mississippi	2	....	....	2	.....	7	5
Montana	....	....	....	....	.....	13	19
Nebraska	....	....	....	....	.....	....	....
New Mexico	10	9	....	1	4,218	131	180
New York	....	....	....	....	.....	15	3
Ohio	10	1	5	4	12	250	426
Oklahoma	22	11	3	8	3,793	553	714
Pennsylvania	5	1	4	....	30	54	39
Tennessee	....	....	....	....	.....	1	1
Texas	259	207	11	41	304,485	3,343	3,443
Utah	....	....	....	....	.....	....	....
West Virginia	15	1	12	2	2	230	220
Wyoming	2	2	....	....	677	24	27
Total this week	444	315	44	85	366,903	6,363	6,404
Total last week	497	358	33	106	411,926	....	.....
Total this year	6,363	4,323	596	1,444	5,276,732	....	.....

Comparison of Permits Granted for New Wells

STATE	Week Ending Apr. 2	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	6	6	63	42	240
California	16	16	328	343	1,584
Louisiana	23	23	335	218	1,227
Kansas	33	33	435	577	2,663
Michigan	14	14	170	224	958
Oklahoma	37	37	528	671	2,711
Texas	120	120	3,510	4,412	17,238
Total	249	249	5,369	6,487	26,621

Production Down Again

Decline of 16,434 barrels to 3,371,232 barrels brings United States total close to the recommended figure.

REFLECTING stricter state allowables for the month of April, United States crude oil production showed further drop, which brought it in close line with the Bureau of Mines estimated demand for this month. The average daily production during the past week was 3,371,232 barrels, a decrease of 16,434 barrels, although the output still exceeded the Bureau of Mines estimate by 9532 barrels daily.

Responsible for the slight decrease during the past week principally were Kansas and Oklahoma, followed by California, which greatly exceeded small gains in Texas and Louisiana.

Kansas output was down 12,375 barrels daily, having averaged 166,375 barrels a day. That was 6625 barrels a day less than the Bureau of Mines recommendation and the allowable prescribed by the state.

Oklahoma last week averaged 491,875 barrels daily, or 12,950 less than in the previous week. That was 34,625 barrels a day less than the estimated demand, but 16,875 barrels above the state allowable.

California showed a decrease of 9883 barrels, having averaged 715,057 barrels daily, which was 16,357 barrels more than the Bureau of Mines recommendation and the recommendation of the Central Committee of California Oil Producers.

Texas production last week was up 7900 barrels, the daily output having been 1,312,650 barrels daily, which was 17,150 barrels below the indicated demand and 5787 barrels below the state allowable.

Louisiana had a gain of 5950 barrels, having averaged 263,375 barrels a day. The daily production during the past week exceeded the Bureau of Mines estimate by 23,575 barrels and the state allowable by 11,100 barrels.

Tax hearing

The Wyoming board of equalization on April 8 will hear protests on its action of last week in increasing the taxable valuation of the state's oil production from $12,334,840 to $17,815,338, a gain of $5,480,548 or 44 percent. The 1938 valuation on natural gas was set at $1,125,510, compared to $1,116,068 a year ago.

Pawhuska.—Of the 94 tracts of Osage Indian lands offered for sale March 29, 49 were sold for a bonus of $10,250. The 49 tracts comprised 7800.45 acres, bringing an average price of $1.31 per acre. Many land men headed for the sale turned back when highways in the vicinity were found flooded by recent state-wide rains.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Apr.)	State Allowable in April	BARRELS DAILY FOR WEEK ENDED	
			April 2	March 26
TEXAS—				
Texas Panhandle	.....	.....	72,500	70,100
North Texas	.....	.....	70,200	68,900
West Central Texas	.....	.....	28,350	27,100
West Texas	.....	.....	187,400	185,400
East Central Texas	.....	.....	98,550	97,800
East Texas Field	.....	.....	429,050	428,450
South Texas	.....	.....	227,100	226,700
Texas Gulf Coast	.....	.....	199,500	200,300
Total Texas	1,329,800	1,318,437	1,312,650	1,304,750
CALIFORNIA—				
Long Beach	.....	.....	56,800	58,400
Santa Fe Springs	.....	.....	36,600	39,450
Huntington Beach	.....	.....	35,300	35,600
Dominguez	.....	.....	26,500	29,150
Inglewood	.....	.....	15,600	15,600
Ventura Avenue	.....	.....	40,600	41,200
Seal Beach	.....	.....	10,500	9,320
Midway-Sunset	.....	.....	62,600	69,250
Elwood	.....	.....	7,000	7,690
Kettleman Hills	.....	.....	85,600	82,300
Mountain View	.....	.....	12,500	11,400
Playa del Rey	.....	.....	7,100	6,970
Wilmington	.....	.....	97,000	102,500
Others	.....	.....	221,357	216,110
Total California	698,700	*698,700	715,057	724,940
OKLAHOMA—				
Oklahoma City	.....	.....	102,700	109,450
Seminole Area	.....	.....	101,375	103,950
Crescent	.....	.....	7,025	7,100
Lucien	.....	.....	12,575	13,025
Fitts	.....	.....	59,725	60,750
Edmond	.....	.....	6,800	7,075
Moore	.....	.....	6,925	7,300
Others	.....	.....	194,750	196,175
Total Oklahoma	526,500	475,000	491,875	504,825
LOUISIANA—				
North Louisiana	.....	.....	80,275	77,125
South Louisiana	.....	.....	183,100	180,300
Total Louisiana	239,800	252,275	263,375	257,425
KANSAS—				
Ritz-Canton	.....	.....	6,550	6,475
Chase	.....	.....	5,675	6,125
Hollow-Nikkel	.....	.....	3,775	3,850
Sedgwick	.....	.....	3,850	3,950
Burrton-Haven	.....	.....	11,425	11,525
Lorraine	.....	.....	2,675	2,825
Russell County	.....	.....	27,550	30,450
Silica—West	.....	.....	12,525	15,500
Silica—South	.....	.....	2,400	3,100
Others	.....	.....	89,950	94,950
Total Kansas	173,000	173,000	166,375	178,850
NEW MEXICO	106,000	103,000	104,500	105,000
MICHIGAN	51,400	.....	52,300	52,850
ARKANSAS	40,000	.....	54,400	52,026
MOUNTAIN STATES—				
Wyoming	46,600	.....	51,900	50,100
Montana	12,700	.....	12,300	11,850
Colorado	4,600	.....	4,150	4,050
Total Rocky Mountain States	63,900	.....	68,350	66,000
EASTERN STATES—				
Pennsylvania Grade	.....	.....	81,200	81,500
Southern Illinois (New Pools)	.....	.....	27,600	26,700
Illinois-Indiana (Old Pools)	.....	.....	12,750	12,250
Others, Eastern	.....	.....	20,800	20,650
Total Eastern States	132,600	.....	142,350	141,100
Total United States	3,361,700	.....	3,371,232	3,387,666

* Recommendation of Central Committee of California Oil Producers.

CRUDE OIL PRICE SCHEDULES

(Figures Revised to April 1, 1938)

MID-CONTINENT GRAVITY SCALE PRICES (Posted January 28, 1937)

(Some fields of Mid-Continent have flat price postings, and are shown separately.)

Gravity	Okla.-Kans.	North La.-Ark.	Rodessa, La.-Tex.	North & W. Cent. Tex.	East Cent. Tex.	Gray Co. Tex.	Carson Hutchinson Co. Tex.	[1]Conroe Tex. Type	West Tex.-N. Mex.	[2]Gulf Coast (Tex.-La.)	[3]Some La. Gulf Areas	[4]Anahauc, Tex. Type	[5]Refugio, Tex. Type	[6]Mirando, Tex. Type
17–17.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	*$0.90	.....	.....	.....
18–18.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.92	.....	.....	.....
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.94	.....	.....	.....
20–20.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	*$0.95	.96	.....	*$1.01	*$0.96
21–21.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.98	.98	.....	1.03	.98
22–22.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.01	1.01	.....	1.05	1.00
23–23.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.04	1.04	.....	1.07	1.02
24–24.9	*$0.98	*$0.90	*$0.93	*$0.88	.....	.....	.....	.....	.....	1.07	1.07	.....	1.09	1.04
25–25.9	1.00	.92	.95	.90	.....	.....	.....	.....	*$0.78	1.10	1.10	.....	1.11	1.06
26–26.9	1.02	.94	.97	.92	.....	.....	.....	.....	.80	1.13	1.13	.....	1.13	1.08
27–27.9	1.04	.96	.99	.94	.....	.....	.....	.....	.82	1.15	1.15	.....	1.15	1.10
28–28.9	1.06	.98	1.01	.96	*$1.03	.....	.....	*$1.20	.84	1.17	1.17	.....	1.17	1.12
29–29.9	1.08	1.00	1.03	.98	1.05	.....	.....	1.22	.86	1.19	1.19	.....	1.19	1.14
30–30.9	1.10	1.02	1.05	1.00	1.07	.....	.....	1.24	.88	1.21	1.21	$1.16	1.21	1.16
31–31.9	1.12	1.04	1.07	1.02	1.09	.....	.....	1.26	.90	1.23	1.23	1.18	1.23	1.18
32–32.9	1.14	1.06	1.09	1.04	1.11	.....	.....	1.28	.92	1.25	1.25	1.20	1.25	1.20
33–33.9	1.16	1.08	1.11	1.06	1.13	.....	.....	1.30	.94	1.27	1.27	1.22	1.27	1.22
34–34.9	1.18	1.10	1.13	1.08	1.15	*$0.96	*$0.91	1.32	.96	1.29	†1.29	1.24	1.29	1.24
35–35.9	1.20	1.12	1.15	1.10	1.17	.98	.93	1.34	.98	1.31	.....	1.26	1.31	1.26
36–36.9	1.22	1.14	1.17	1.12	1.19	1.00	.95	1.36	1.00	1.33	.....	1.28	1.33	1.28
37–37.9	1.24	1.16	1.19	1.14	1.21	1.02	.97	1.38	1.02	1.35	.....	1.30	1.35	1.30
38–38.9	1.26	1.18	1.21	1.16	1.23	1.04	.99	1.40	1.04	1.37	.....	1.32	1.37	1.32
39–39.9	1.28	1.20	1.23	1.18	1.25	1.06	1.01	1.42	1.06	1.39	.....	1.34	1.39	1.34
40 & Above	1.30	1.22	1.25	1.20	1.27	1.08	1.03	1.44	1.08	1.41	.....	1.36	1.41	1.36

* Minimum price and applies also to purchases of lower gravity.

[1] Conroe, Tomball, Satsuma, Raccoon Bend Deep fields.

[2] Upper Texas Gulf Coast, including Goose Creek, Spindle Top, etc., and some fields of Louisiana Gulf Coast, including Black Bayou, White Castle, Vinton, Hackberry, etc., except that top price for those Louisiana fields is $1.29 for 34 gravity and above.

[3] Choctaw, Darrow, Lockport, Iowa (Magnolia posting), Cameron Meadows, etc.

[4] Anahuac, Dickinson, Flour Bluff, Turtle Bay.

[5] Lower Texas Gulf Coast, including Refugio, Saxet, etc. Posted 7-6-37.

[6] Duval, Jim Hogg, Webb and Zapata Counties; Heyser, Placedo fields. Posted 7-6-37.

† Maximum price and applies also to purchases of higher gravity.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Smackover	$0.90	1-28-37
Louisiana:		
Garden Island	1.37	1-28-37
Lafitte	1.24	1-28-37
Texas:		
East Texas	1.35	5-22-37
Talco	.73	1-28-37
Livingston, Cleveland	1.27	1-28-37
Hardin	1.15	1-28-37
Van	1.10	1-28-37
Pettus	1.37	1-28-37
Pecos County	.91	1-28-37
Pecos Shallow	.81	1-28-37
Luling	1.00	1-28-37
Lytton Springs	1.12	1-28-37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09	1-28-37

Michigan Prices

Central Michigan	$1.27	7-24-37

Middle West Prices

Lima, Ohio	$1.00	11-20-37
Illinois	1.35	1-28-37
Princeton	1.35	1-28-37
Western Kentucky	1.40	1-28-37

Rocky Mountain States Prices

	Flat Price	Date Posted
Colorado:		
Ft. Collins and Wellington, Light	$1.01	1-28-37
Ft. Collins and Wellington, Heavy	1.25	1-28-37
Cannon City and Florence	1.10	1-28-37
Iles, Light	1.18	1-28-37
Iles, Heavy	1.12	1-28-37
Montana:		
Cat Creek	1.30	1- 1-38
Cut Bank	1.35	6- 3-36
Frannie, Light	.82	1-28-37
Frannie, Heavy	.62	11- 4-36
Pondera	1.05	9-29-33
Sunburst	.90	11-16-37
***New Mexico:**		
Hogback	1.33	1-28-37
Wyoming:		
Big Muddy	1.18	1-28-37
Elk Basin	1.30	1-28-37
Graybull-Torchlight	1.30	1-28-37
Grass Creek, Light	1.30	1-28-37
Grass Creek, Heavy	.62	11- 4-36
Hamilton Dome	.57	11- 4-36
Lance Creek	.97	1-28-37
Osage	1.30	1- 1-37
Rock Creek	1.20½	1-28-37
Salt Creek, Tensleep	.70	1- 6-38

* Also see Mid-Continent Gravity-Scale Schedule above.

Pennsylvania Prices

Bradford-Allegheny	$2.05	3- 7-38
National Transit Lines	1.98	3- 7-38
Sw. Pa. Pipe Line	1.71	3- 7-38
Eureka Pipe Line	1.65	3- 7-38
Buckeye Pipe Line	1.55	3- 7-38
Corning Grade	1.27	12- 1-37

Prices Outside United States

Canada:		
Petrolia	$2.10	9- 9-33
Oil Springs	2.17	9- 9-33
Mexico:		
F.O.B. Tampico; net; U. S. Currency, buyer pays tax	$0.95	Dec.,1937

Major Price Changes

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19,1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Cut *1
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	Up *28
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up *9
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up †5
December 28, 1936	Up 12	.....	.....
January 28, 1937	.....	Up 12	.....
February 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
September 1, 1937	Cut 22	.....	.....
October 12, 1937	Cut 25	.....	.....
December 1, 1937	Cut 15	.....	.....
March 7, 1938	Cut 17	.....	.....

* Signal Hill 26 gravity. † Seal Beach 26 gravity.

Crude Production Taxes

Oklahoma—Five percent of gross value less royalty interest.

Texas—2¾ cents or 2¾ percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and ⅝ of 1c per barrel.

New Mexico—Severance tax of 2 percent on oil and gas.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.

High production threat to California prices

Despite some indications that first-quarter earnings of California oil companies may equal those of the corresponding period last year, there is an undercurrent of concern in executive quarters of the industry regarding prospects for the remainder of the year.

This anxiety, experts say, is based on current over production of crude, which they believe must be remedied to prevent crumbling of the price structure. The present crude prices were reestablished in February, 1936, and two months later, stabilization of the gasoline market was effected, following several months of unrest as a result of the collapse of NRA control of the industry.

Realizing the difficulties to be overcome, the industry established a voluntary basis of production curtailment, and with the exception of a few weak spots, the progress made has been unusually successful.

A year ago, oil companies were still counting their profits because of the disposal of 6,000,000 barrels of fuel oil. This fuel was used to combat a severely cold winter in the citrus industry. However, this winter the citrus growers have had fortune on their side and have escaped so far without loss, so that there has been little use of smudge oils.

Offsetting the cold spell, however, is the Sino-Japan conflict. Shipments to Japan of fuel and other types of petroleum have been averaging 90,000 barrels a day for the three months ended March 31, 1938. Crude shipments to offshore points during the last three months of 1937 averaged about 50,300 barrels daily. Aggregate movement during the first quarter of 1938, therefore, will be more than 3,500,000 barrels greater than for the final quarter of 1937.

Crude exports at new peak

Shipments of United States crude oil to foreign countries reached a new all time peak in 1937, according to the metals and minerals division of the department of commerce.

The crude exports amounted to 67,179,000 barrels, having increased about 1/3 over 1936, and they were 1½ times as large as in 1929. Domestic production in 1937, in contrast, was slightly less than 1/6 greater than in 1936 and a little over ¼ more than in 1929.

The ratio of exports to domestic production has increased from 2.6 percent in 1929 and 4.6 percent in 1936 to 5.3 percent in 1937.

As for several years previously, Canada, Japan, and France were in 1937 the chief purchasers of United States crude. Canada took 28,080,000 barrels, an increase of 9.3 percent over 1936; Japan, 16,047,000 barrels, a gain of 54.6 percent, and France, 10,066,000 barrels, an increase of about 35 percent. Purchases by Italy gained heavily, jumping from 1,863,000 barrels in 1936 to 4,544,000 barrels in 1937.

Refined Oil Exports

Shipments abroad of refined oils increased from 71,522,000 barrels in 1936 to 94,582,000 barrels last year, a gain of 32 percent, but still were well below the 1929 exports of 126,195,000 barrels. These exports last year comprised 8 percent of the total domestic production, against 6.7 percent in 1936 and 12.4 percent in 1929.

Gasoline exports in 1937 totaled 34,173,000 barrels, an increase of 9,550,000 barrels over 1936. An increase of 304 percent raised Netherlands West Indies purchases to 3,361,000 barrels; one of 107 percent boosted France's takings to 1,794,000 barrels; and that of 48 percent raised Belgium's takings to 2,141,000 barrels.

Exports of other important products included 8,664,000 barrels of kerosene, against 6,713,000 barrels in 1936; 28,093,000 barrels of gas oil and distillate fuel oil, against 18,649,000 barrels; 12,810,000 barrels of residual fuel oil, against 12,955,000 barrels; and 10,842,000 barrels of lubricating oils, against 8,573,000 barrels in 1936.

F. A. C. GUEPIN has been elected to the directorate of Shell Oil Company and subsidiaries, it was announced by S. Belither, president. Guepin, who became Shell's executive vice president last November, will hold a similar executive position and serve as a director of Shell Oil Company, Inc., Shell Oil Company of British Columbia, Ltd., and Gasco Motor Fuel Company, Ltd. Guepin, who is now only 39 years of age, joined the Shell group in 1928. Promotions followed rapidly, and he acquired an international experience in petroleum production and marketing. He was closely connected with the part played by Shell in international discussions seeking conservation of petroleum resources.

CALIFORNIA CRUDE OIL PRICES

(Posted February 26, 1936; except El Segundo and Wilmington, posted October 15, 1937, and Greeley and Canal posted December 22, 1937). All gravity above those quoted take highest prices of that field.

Gravity	El Segundo & Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Springs	New Hall McKittrick Kern River Round Mountain	Greeley, Canal	Mountain view	Midway-Sunset Buena Vista Hills Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Wilmington
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	$.80	$.76	$.76	$.77	$.78	....	$.70	....	....	$.70	$.70	$.70	....	$.75
15-15.9	.80	.79	.78	.79	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.75
16-16.9	.80	.79	.78	.79	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	75
17-17.9	.80	.79	.78	.81	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.77
18-18.9	.80	.79	.78	.84	.80	.78	....	.82	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.79
19-19.9	.82	.79	.82	.87	.84	.81	....	.85	.76	.78	.77	.78	....	.70	....	$.70	.74	.74	.71	$.70	82
20-20.9	.85	.79	.85	.90	.88	.84	....	.88	.78	.82	.77	.80	....	....	....	.70	.78	.78	.72	.70	85
21-21.9	.88	.79	.89	.93	.93	.88	....	.91	.80	.85	.77	.84	$.78	....	....	.73	.82	.82	.74	.70	88
22-22.9	.92	.82	.92	.96	.98	.92	....	.93	.84	.89	.79	.88	.78	....	....	.77	.87	.86	.78	.72	92
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	.96	.88	.93	.82	.92	.78	....	....	.80	.92	.90	.82	.76	95
24-24.9	.99	.91	1.00	1.02	1.06	.99	.88	.99	.91	.96	.85	.96	.82	....	....	.84	.97	.94	.86	.79	.99
25-25.9	1.03	.95	1 03	1.05	1.11	1.03	.93	1.02	.95	...	.89	.99	.86	....	....	.88	1.01	.98	.90	.83	1 03
26-26.9	1 06	1.00	1.07	1.09	1.16	1.06	.98	1.05	.98	...	.92	1.03	.90	Elwood	....	.91	1.06	1.02	...	....	1.06
27-27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....	1.02	...	.96	1.06	.95	Terrace	$.84	.95	1 10	1 06	...	....	1.10
28-28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....	1.06	...	.99	1.10	.99	.88	.99	1.15	1.10	....	....	....	1.14
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	1.09	...	1.03	1.14	1.03	....	.92	1.02	1.20	1.14	...	....	1.17
30 30.9	1.21	1 19	1.22	1.21	Pipe	1.21	1 17	....	....	...	1.07	1.17	1.08	F.O.B.	.95	1.06	1.25	1.18	...	....	1.21
31-31.9	....	....	....	1.24	Line	1.24	1.22	Kettleman Hills			1 11	1.21	1.12	Ship	.99	1.09	1.29	....	...	....	....
32-32.9	....	....	....	1.27	....	1.27	1.27				1.14	1.25	1 16	....	1.03	1 13	1.34	....	...	....	....
33-33.9	....	....	....	....	....	....	1.32	1.19			1.18	1.28	1.20	1.28	1.07	1.17	1.38	....	...	....	....
34-34.9	....	....	....	....	....	....	1.37	....	1 23	...	1.22	1.32	1.25	1.32	1.11	1.20	....	....	...	....	....
35-35.9	....	....	....	....	....	....	1.42	....	1 27	...	1.25	....	1.29	1.35	1.15	....	....	....	...	....	....
36-36.9	....	....	....	....	....	....	1.46	....	1.31	...	1.29	....	1.33	1.39	1.19	....	....	....	...	....	....
37-37.9	....	....	....	....	....	....	1 51	....	1.35	...	1 32	....	1.37	1.43	1.23	....	....	....	...	....	....
38-38.9	....	....	....	....	....	....	1.56	....	1.39	...	1.36	....	1.42	....	1.27	....	....	....	...	....	....
39-39.9	....	....	....	....	....	....	1.61	....	1.43	...	1 40	....	....	....	1.31	....	....	....	...	....	....
40-40.9	....	....	....	....	....	....	1.66	....	....	...	1.43	....	....	....	1 34	....	....	....	...	....	....
41-41.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.38	....	....	....	...	....	....
42-24.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1 41	....	....	....	..	....	....
43-43.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1 45	....	....	....	...	....	....
44-44.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.49	....	....	....	...	....	....
45-45.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1 53	....	....	....	...	....	....
46-46.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.56	....	....	....	...	....	....
47-47.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.60	....	....	....	...	....	....
48-48.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.64	....	....	....	...	....	....

Mexican Muddle

[*Continued from page 13*]

however, on numerous occasions and in the most friendly manner, pointed out to the government of Mexico that, in accordance with every principle of international law, of comity between nations and of equity, the properties of its nationals so expropriated are required to be paid for by compensation representing fair, assured and effective value to the nationals from whom these properties were taken.

"The recent expropriation by the Mexican government of oil properties belonging to American citizens is therefore but one incident in a long series of incidents of this character and accordingly raises no new question.

"The subject now under consideration between the Government of the United States and the Government of Mexico is the matter of compensation for various properties of American citizens expropriated in the past few years. It is my very earnest hope that because of the very friendly relations existing between the two governments a fair and equitable solution of this problem may soon be found by the Mexican government," said Hull.

Warned Four Years Ago

The warning signal of expropriation of the Mexican oil industry was hoisted four years ago in the express program of the National Revolutionary Party, which inducted Lazaro Cardenas into office as President of Mexico.

Followers of the National Revolutionary Party were (and are) principally, the workers of the country. For those workers President Cardenas announced the "Plan Sexenal"—The Six Year Plan—out of which was to come "a measure of social and economic liberty for the Mexican population."

Of the oil companies, some of which held concessions granted by Dictator Porfirio Diaz before he was driven from Mexico in 1911, the Six Year Plan prescribed:

"Study of the existence of contracts in which are found the rentals of confirmed concessions, at the end of which cancellation of those whose base contracts have been found wanting in any one prescribed form, is desired."

Thus spoke President Cardenas and his National Revolutionary Party in 1934. Recently, in a statement released through the Mexican consulates in the United States, Cardenas accused the oil companies, while claiming not to have sufficient money to meet the pay-raises awarded the workers by the Supreme Court, to have had sufficient money "for arms and munitions of rebellion."

Denies Social Aid

Cardenas denied the oil companies have brought to Mexico large amounts of money for development and expansion. He said the larger part of the oil companies' existence over the years has been enjoyed because of "customs privileges, of taxation reductions, and of innumerable prerogatives."

Fear that the peso will drop "out of sight" is not shared by Mexican officials living in the United States. "Should the peso drop to a very low level American exporters will be the first to demand its stabilization," one official said.

American tourist trade in Mexico apparently has suffered seriously as a result of Cardenas' expropriation decree.

Queried over long distance telephone late April 1 as to the effect of the present situation on travel into Mexico over the Texas border, a customs employee in the Federal building in Laredo stated traffic had fallen off as much as 50 percent since March 18.

"Is there a possibility of the oil companies getting their property back?" he was asked.

"Very little," he replied.

Announcing its suspension of all efforts to aid the Mexican silver industry by purchasing its output at 45 cents an ounce, with a consequent drop of two cents in the New York price in two days, the United States Government this week adopted an inexorable attitude of disapproval toward Mexico's expropriation of foreign oil properties and prepared to withdraw entirely from the "good neighbor" policy which has been maintained toward that country for years.

Although refusing to comment directly upon the oil situation, Secretary of State Cordell Hull disclosed that a lengthy memorandum, field with the department by the representatives of the American oil companies affected, was being closely scrutinized. No intimation was given as to what, if anything, would be done toward securing recovery of or compensation for the oil properties beyond the representations made to the Mexican government by the Ambassador at Mexico City.

Executives Confer

The expropriation was the subject of a conference of nearly two hours' duration at the State Department March 28 between a number of high government officials and W. C. Teagle, chairman of the board, and W. S. Farish, president, of the Standard Oil Company of New Jersey, Eugene Holman, president of the Huasteca Oil Company; Judge Frank Feuille of the Standard Oil Company of California; A. E. Watts, president of Penn-Mex Fuel Company, and Judge James W. Reid, general counsel for the Sinclair interests.

Other Trump Cards

But in addition to this, it is pointed out, the Washington government has other punitive measures which can be invoked, among them the denial to Mexican products of most-favored-nation treatment with respect to import duties and other barriers which would deprive Mexico of any advantages it may derive from concessions granted in any of the reciprocal trade agreements which have been negotiated with other countries.

Further, it is said, there are questions of water rights along the border which can be applied against Mexico; the present agreement for the entry of Mexican cattle, which can be revoked, and the many other services which this country has performed for Mexico, which can be discontinued.

Severance by the United States of its ties with Mexico is almost certain to be followed by Great Britain who, precluded by the Monroe Doctrine from taking decisive action, looks to Washington to protect its interests.

Meanwhile, reports reaching Washington indicate that "Mexico for the Mexicans" is having hard sledding, with above-ground storage space already filled with oil that cannot be moved, with refining almost at a standstill, and with the new Mexican operators of the American and British properties uncertain where next to turn.

Before expropriation, Mexico's domestic distribution fell far short of providing payroll wherewithal. An improvement in that situation is not seen from government control. Oil exporting presents two dominating problems for the administration: to get enough buyers abroad whose orders will be sufficiently large and frequent to make serving them a business, and to make deliveries of the oil.

The tanker situation is an acute one for the government. It apparently has ample facilities for domestic distribution, which is continuing normal, through tank cars, trucks, etc., that belonged to the expropriated companies. But there is a great paucity of steamer tankers. On the eve of expropriation the only three tankers in Mexican waters, owned by the Mexican Eagle Oil Company but of Mexican registry, were forced to leave Tampico, taking but 7000 of the 200,000 barrels they had called for—a shipment on one of the vessels, but the others were in ballast, because of pacific sabotage of the port's oil workers who refused to work pumps or otherwise load the ships.

The proposition mentioned some time ago by the General Administration of National Petroleum of building or buying a fleet of tankers to get its oil to foreign buyers has been taken up for consideration by the government's general oil control board which is occupying the handsome building here that the Mexican Eagle Oil Company completed for its headquarters shortly before expropriation. The government's straitened economic position presents a great difficulty to the fulfillment of either phase of the proposition. The plan is also complicated by the new weakness of the peso, currently some 85 points higher in favor of the dollar than it was before expropriation.

There is some talk of building the tankers at the Vera Cruz dockyard at the shipyard in Campeche state, both of which are run by marine workers' co-operative societies. The Vera Cruz dock produced Mexico's first all-steel steamer, a 500-tonner, and a dredge was manufactured at the Campeche yard.

A morsel of the problem will be solved, it is expected, with the arrival from England in the near future of from 10 to 12 tankers to take delivery of the some 1,000,000 barrels of oil the General Administration sold to the Cory Brothers syndicate. It is understood that these tankers are to be exclusively for oil sold to the Corys.

The first mentioned possible foreign

oil sale, that of 500,000 barrels a year by Japan, a transaction that was denied by the government, is considered to be insignificant, even if it should materialize. In order to make its undertaking a business, the government must export at least 25,000,000 barrels a year. Oil exports last year were more than 1,000,000 barrels less than those in 1936.

New line begins runs

Crude oil from Buckeye field of Michigan began running through Bay Pipe Line Company's new 6-inch, 33½-mile line to the mouth of the Saginaw river on schedule last week to supply Bay Refining Corporation's new 4000-barrel refinery which started operations March 28. Capacity of the line is 12,000 barrels and, in addition to supplying the refinery, it will move crude for lake tanker shipment to other Great Lakes ports. A loading dock for the tankers is to be completed within a week. The pipe line and refinery companies are controlled by independent producing interests.

Hearing on offshore terminal

A hearing will be conducted in Saginaw April 8 on the application of the United Fuel Oil Company, Detroit, for permission to provide a pipe line and lake terminal shipping point 3000 feet offshore at White Stone Point in Lake Huron by Captain Homer B. Pettit, acting chief of the Detroit office of the army engineer corps. It was called following protests of a group of Point Lookout property owners who maintained that the project would destroy the scenic value of the region and pollute the water. The project is a joint action of producers, transporters and refiners to provide cheaper lake transportation of crude from the Arenac and Ogemaw fields. It involved construction of a 24-mile pipe line, of either 4 or 6-inch.

Grand Old Man nominations received by exposition

Nominations for the "Grand Old Man of the Oil Industry" are being received by the Old Timers committee of the International Petroleum Exposition and selection of the recipient of the award will be made and the person selected will be awarded a medal at the oil show in Tulsa May 14 to 21.

H. R. Gruber, vice president and oil country sales manager of the Union Wire Rope Corporation of Tulsa, said that the "Grand Old Man" must have been actively engaged in the oil industry for at least 50 years and have contributed to the development of the industry.

Any company or locality may nominate and sponsor a candidate for the "Grand Old Man" and nominations should be sent to the International Petroleum Exposition, Tulsa, Oklahoma.

It is the aim of the committee to some day have every pioneer's name on record, and due honors given each individual, said Gruber.

"Grand Old Man of the Industry" selected at the last exposition was: Martin H. Mosier, Los Angeles, California; and W. J. Stewart of Tulsa as Grand Old Man of Tulsa.

Labor Situation

Humble presents defense at Ingleside . . . Contract conference held by I. T. I. O. and union . . . High Court will hear Pennsylvania labor arguments soon.

THE eyes of oil companies and unions last week were still fixed on the labor hearing involving the Humble Oil & Refining Company's plant at Ingleside, Texas. The company faces the same charges of discouraging union activities, alleged encouragement of employes federations and discharge of men for union activities. It is expected that this hearing will last for several more weeks. A further event in the industry's labor situation last week was the contract difficulties encountered by Indian Territory Illuminating Oil Company, and representatives of the C.I.O. Pennsylvania's labor dispute, in the meantime, has been referred to the supreme court, which will hear arguments the second week of this month.

Humble opens defense

Testimony supporting Humble Oil & Refining Company's contention that it dismissed two Ingleside refinery workers last fall for sleeping on duty was heard the latter part of last week by J. C. Batton, trial examiner of the National Labor Relations Board. The Oil Workers Union, a C.I.O. affiliate, has charged the company dismissed the men for union activities. In the course of this testimony the company tried to establish proofs that the men were not fired because of union activities, but solely for neglect of duty. Although the men themselves admitted having neglected their duty, they maintained that they were not asleep when surprised by a foreman. After lengthy cross examinations both men still maintained that their dismissal was primarily caused by the fact that they were actively taking part in the union movement. However, several witnesses produced by the company contended that under the circumstances the dismissal was justified, as the absence of the men represented a severe negligence of duty, creating a considerable safety hazard. Testimony of further witnesses on this charge will be taken before the remaining two charges will be taken up.

I. T. I. O. holds conference

Contract difficulties, which grew out of an unauthorized strike of workers at the Oklahoma City field, were discussed in a conference last week by officials of Indian Territory Illuminating Oil Company, Bartlesville, Oklahoma, and representatives of the C.I.O. oil field workers union. President Burdette Blue headed the company officials. District organizer Maurice Daly and a number of employes appeared for the workers.

In October, 1936, the union and the company signed a contract which was to continue in effect a year and thereafter unless cancelled, following 30 days' notice from either side. A provision was made that there should be no strike as long as the contract was in force.

Following the strike last fall the company cancelled the contract. Officials said that since then, however, the company had made a bulletin board statement that terms of the contract were being continued in effect for its employes.

The meeting is scheduled to last several days.

Pennsylvania labor suit

A plea for an early hearing by the Pennsylvania Supreme Court of that state's 44-hour week law for male workers was made by Sterling G. McNees, chief counsel for a group of firms and organizations which brought a test case that resulted in a lower court ruling against the act a week ago. The high court has indicated it will hear the argument in Philadelphia the week of April 11 or 18.

"While the freedom of the worker to make his own contracts for employment, whether singly or in organized groups, is now fully protected by the decision of the court in this case, we entirely agree with those who believe that the supreme court should pass upon the question as soon as possible," McNees said. "Employes and employers alike must plan as far ahead as possible in these days and both are entitled to an early conclusion of the whole matter. We have, therefore, joined with Attorney General Charles J. Margiotti in the request that argument before the supreme court be fixed as soon as the commonwealth can have the record printed."

Meanwhile, it was announced last week that another important piece of Pennsylvania labor legislation—the new workmen's compensation act—would probably have to go through the Dauphin County Court before coming before the state's high court as parties involved were unable to agree on the facts of the case. The attack on the act, which would increase the weekly minimum payments for industrial injuries from $7 to $12 a week and the maximum from $15 to $18, is being led by William A. Schnader, former attorney general of Pennsylvania. It is based on the following points: that the act would increase the cost of insurance, would make employers liable for injuries received elsewhere than on their own property, would make employers liable for an injured employe not working in accordance with the law, and would allow compensation in excess of wages received by many workers.

Oil in Courts

[*Continued from Page 15*]

the illegal oil. As regards disposition there were but three possible alternatives to confiscation: destruction; pumping the oil back into the reservoir which, if possible, was hardly practical; and leaving the oil permanently where it was in which condition it constituted a nuisance per se in every proper sense of the term. The selection of means to the desired end was a legislative function. The courts are in no position to judicially know that the means bore no reasonable relation to the objectives . . . and the legislative action is not subject to judicial review. From what has already been said it follows that the confiscation act was not unconstitutional as being retroactive with respect to already existing illegal oil. It merely afforded a remedy for the abatement of an existient nuisance."

Limit prohibition of vacuum lift

Authority of the Oklahoma Corporation Commission to prohibit use of the vacuum lift for recovery of oil, was limited March 29 following a ruling handed down by the State supreme court. The ruling stated the method could be prohibited only in those areas where it can be proved it would create waste.

The ruling was handed down in an appeal by Gilmer Oil Company and Roy M. Johnston, operators in the Healdton field of Carter County, vacating an order prohibiting use of the vacuum there.

The opinion declared evidence to show use of the vacuum lift had damaged producing sands or wasted gas reservoir pressure had not been introduced. "Unsupported by established facts," was the expression of the court following testimony by witnesses who stated the method was improper.

The court also stated facts showing the method had been used in other fields over a period of 60 years without harmful results. "In the Healdton field," the court declared, "the respondents have employed it over a period of 20 years and production has been maintained at a level seldom accomplished by any other means."

Must regard property lines in slant holes

Invasion of neighboring oil property through slant hole drilling, a problem that has vexed California oil operators for many years, was ruled out by the State Supreme Court last week in the case brought by Alphonzo E. Bell Corp., against Bell View Oil Syndicate et al, and three associated cases.

The defendants sought a Supreme Court hearing after the Third District Court of Appeals ruled against them. Plaintiff sued for an accounting and to enjoin further production from certain slant-drilled wells that allegedly had tapped its property beneath the surface.

A legal point involved was whether the owner of a surface location in an oil field is entitled to disregard property lines and to drill his wells and produce from any place in the oil field. The appellate opinion, now approved by the Supreme Court, reversed judgments of Superior Judges Isaac Pacht and William J. Palmer and affirmed those of Superior Judges Elliott Craig and Minor Moore.

Judge Palmer and the defendants contended that so long as an operator did not produce more than his co-equal share of all the oil in the field no cause of action existed by reason of the operator ignoring property lines and drilling his well into a neighbor's property and producing oil therefrom. Judge Minor Moore, in a hearing in the same case had ruled that a cause of action did exist and property lines were ignored and the property of the neighbor invaded. The opinion of the District Court of Appeal approved by the Supreme Court sustains the decision of Judge Moore in this connection.

The action brought was to recover the value of the oil and gas taken and removed from the plaintiff's property and to enjoin further production from these wells. The Supreme Court's ruling came after demurrer was sustained by Judge Palmer and the case now will be tried on its merits.

U. S. ruled owner of Elk Hills tract

Formal determination by the General Land Office that title to Section 16 in the Elk Hills (Cal.) petroleum field rests in the United States was announced March 30 by Secretary of the Interior Harold L. Ickes.

The determination by Fred W. Johnson, commissioner of the General Land Office, was based on a decision rendered February 11 by the Federal District Court for Southern California, affirming a similar decision with respect to Section 36. Both determinations were based on the contention that the lands were known to be mineral in character prior to January 26, 1903, and were therefore not subject to private ownership and development.

The ruling on Section 16, in effect, denies claims to ownership made by the State of California, General Petroleum Company of California, Thomas A. O'Donnell, Homer I. Tupman and Potter Oil Company. All the parties to the case have been given 30 days in which to appeal from the commissioner's decision to the Secretary of the Interior.

Originally known as the "Visalia contest," the Section 16 case constitutes the second of two major efforts by the Interior Department to recover valuable lands in the Elk Hills field for the government.

The first case, involving Section 36, resulted in a victory for the department in the District Court in February, when Judge Leon R. Yankwich held that title to the properties in that portion of the Elk Hills tract remained in the government and ordered Standard Oil Company of California to pay $6,214,-102.42 damages and court costs.

Appeal of the decision is now pending before the Circuit Court of Appeals and undoubtedly will be carried to the Supreme Court for final decision.

Both of the cases, it was explained at the department, had their background in legislation enacted by Congress in 1935, under which it was stipulated in part that Sections 16 and 36 of every township of public lands in the State of California was to be granted the state for public school use. The courts, however, subsequently construed this law to be amenable to the general mineral land exclusion policy of the government.

When oil development activities struck the Elk Hills territory, private prospectors bought up portions of the school land sections and eventually the oil lands came into possession of Standard Oil Company of California, which claimed title in the present litigation on the ground that the property had not been recognized as mineral in character at the time the approval of the survey of the lands was given by the General Land Office in 1903.

These claims were challenged by the Interior Department in May, 1925, and in January, 1935, the Secretary ruled that Section 36 was known to be mineral in character before 1903. Thereafter, suit was filed and the case was tried last November, resulting in a decision in favor of the government two months ago.

Indict 15 officials for fraudulent bills

Fifteen officials of Ohio Fuel Gas Company, and its parent holding company, Columbia Gas & Electric Corporation, were indicted last week by the Franklin County Grand Jury at Columbus, Ohio, on charges of "rendering false bills to a municipality" on two counts, "obtaining money under false pretenses" on two counts and perjury.

The criminal action is the aftermath of a civil suit filed last September 18 by City Attorney John L. Davies of Columbus, acting as a taxpayer, seeking on behalf of about 700,000 Ohio customers of the Columbia Gas & Electric Corporation and affiliated companies damages of $42,000,000 for alleged dilution of natural gas with inert flue gas or smoke.

The indictments charge the defendant company and the officials generally with "willfully and corruptly adulterating, cutting and diluting the natural gas supply" with intent to "defraud customers" by pumping into its natural gas lines a substance "wholly lacking in heat value and variously known, described and referred to as flue gas, smoke gas, and inert gas, composed of nitrogen and deadly carbon monoxide and in no sense was said product natural gas."

The indictment charging a false bill to a municipality is based on bills of the company for gas consumed at the municipal hangar at Port Columbus which are allegedly 10 percent too high because of the presence of inert gas. That charging obtaining money under false pretenses is based on payment by the Columbus Board of Education for "natural gas." The perjury charges are based on signatures of company officials to annual reports of the Ohio Fuel Gas Company for the years 1929 to 1936, the indictment alleging that figures labelled "natural gas"" were "falsified and padded and vast quantities of flue gas, smoke gas and inert gas" were included.

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Brazil-Bolivia treaty involves exploration

A treaty between Brazil and Bolivia relating to the construction of railway lines and development of petroleum resources was signed recently in Rio de Janeiro by representatives of the two governments, according to a report of the American Commercial Attache at Rio de Janeiro.

Under terms of the treaty the Brazilian government will finance, up to a specified amount, the construction of a railway from a convenient point to be selected between Porto Esperanca and Corumba and terminating in the city of Santa Cruz de la Sierra, the report states.

The Bolivian government agrees to commence the construction of a railway, with the cooperation of Brazil, from Villa Villa to Santa Cruz de la Sierra and from there a branch line either to Puerto Grether or some other navigable point on the Ichilo River. The proposed railway will be operated and administered by the Bolivian government, it was stated.

The treaty provides for joint exploitation of oil in the Bolivian sub-Andean zone, the total cost of which was estimated at $1,500,000 by the mixed Brazilian-Bolivian commission during the latter part of 1937. It was provided that Brazil will make immediate contribution of its one-half share, but no definite date was fixed for Bolivian contributions. The Bolivian government will permit Brazilian-Bolivian companies to construct necessary pipe lines from petroleum production centers to the Brazilian frontier or a port on the Paraguay River.

Under the terms of the treaty, petroleum deposits are to be exploited by mixed Brazilian-Bolivian companies, with the idea of completely supplying the Brazilian market.

Interest renewed in north end Turner Valley

Renewed interest is directed to the long neglected north end of the Turner Valley structure, Alberta, Canada, as a result of successful completion last week of Royalite Oil Company's 29, Legal Subdivision 7, Section 27, Township 20, 3-w5, a location which geologists discouraged the Turner Basin Oil Company, Ltd., which started the well, from completing. The well is a mile north of present production and several miles from the scene of present intensive development on the southwest flank.

With gas lift, the well came in at the rate of 150 barrels a day from a total depth of 6920 feet. Officials proclaimed it a "good commercial producer" in its present state and prepared to give acid treatment after which a five-day test will be made to determine potential. The test opens a large area for development. This company's 32, Legal Subdivision 8, Section 17, Township 18, 2-w5, was spudded in last week and was drilling at 200 feet as the week closed.

Royalite's 29 was one of three completions made in Turner Valley last week. Davies Petroleums, Ltd.'s 1, Legal Subdivision 2, Section 29, Township 18, 2-w5, on the southwest flank, stopped drilling at 470 feet in the Madison lime, 7308 feet total depth, and was described as a "very good well." Adjustments to tubing were being made preparatory to putting the well on production test. It is just south of Commoil, Ltd.'s 1, largest crude producer in Canada with a potential of 2998 barrels daily. The Davies company owns the second largest producer, known as the Davies 2, with a potential of 2313 barrels. This company's No. 3 is a southern pathfinder and is drilling at 2300 feet, and a No. 4 is scheduled to start soon on a lease recently acquired

"The Brains of Mexican Labor"

Lic. Vicente Lombardo Toledano, secretary general of the Mexican Confederation of Workers and Farmers, Mexico's strongest labor organization, has often been referred to as the "brains of Mexican labor." A brilliant orator, he is shown here harranging the people of his native land.

from British Trans-Canada Oils, Ltd., Legal Subdivision 10, Section 32, Township 18, 2-w5, on the southwest flank.

Just one location east of the Davies Company's new producer, Sunburst Oil Company, Ltd.'s 1, Legal Subdivision 1, Section 29, Township 18, 2-w5, was completed at 7157 feet, 455 feet in the lime. It was described as a good as National Petroleum Corporation, Ltd.'s 1, directly north, which has a potential of 1051 barrels daily. A production test was under way at the end of the week. The test was cleared by forcing waste down the drill stem, and removing joints filled with rotary fluid singly.

National Petroleum Corporation, Ltd.'s 2, Legal Subdivision 14, Section 9, Township 18, 2-w5, a mile south of present production and deepest of the west flank southern pathfinders, encountered the Dalhousie sands at 6690 feet and was drilling at 6860 feet, below the Brown sands, as the week closed. The Madison lime contact was expected in another 150 feet. The well has been logging favorably and is expected to materially extend the field to the south and make a large area south of the Highwood River attractive for exploration. This company's No. 1, which is not subject to proration imposed by principal buying companies but is marketing its product independently, was allowed to run open under full pressure. It yielded 1256 barrels the first 12 hours, compared to its potential established by government test in January of 1051 barrels daily.

Richland Oils, Ltd.'s 2, Legal Subdivision 5, Section 28, Township 18, 2-w5, in the proven area of the southwest flank, was still drilling as the week closed in search of additional gas pressure. Production was being taken during drilling with cable tools, but it was impossible to estimate the well's capacity. Total depth is 6940 feet, or 530 feet in the Madison.

North Saghalien five-year plan hampered by politics

Prospects of North Saghalien Petroleum Company for carrying out its five-year production plan in North Saghalien have been considerably dampened by the existing international situation as regards Japan, China and Soviet Russia, with the latter applying pressure in the fields and considerably hampering work.

Although the petroleum resources of Japan are not of the richest, the North Saghalien oil concessions and the domestic resources together occupy an important position as one source of supply. The North Saghalien Petroleum Company, charged with the operation of the concessions in question, in 1936 produced 181,000 metric tons (approximately 1,690,476 barrels) or nearly 70 percent of the 105 million gallons for Japan proper and Formosa combined, and 42 percent of the entire Japanese production of 174 million gallons.

This company, one of those formed for the development of concessions abroad, was established in June, 1926, under the supervision of the Japanese government and on the basis of the North Saghalien concession agreement with the Soviet government, which was signed in December, 1925. The company took over the business of the Hokushin Kai, who had been operating since 1919; the eight oil fields of Okha, Ekhabi, Piltun, Nutovo Chiavo, Nyivo, Uigleku ty and Katangli, covering a total area of 6358.4 acres and acquired the rights of mining for 45 years and of prospecting for 11 years over an area of 100 square Russian miles, corresponding to 272,000 acres.

Before the termination of the prospecting right at the end of 1936, a detailed agreement with the Soviet authorities was signed on October 10, 1936, extending the concession for five years. A five-year plan for oil prospecting was then framed by the company in collaboration with government quarters. The plan provides for the complete prospecting of major fields during the period of five years from 1937 to 1941, in order to secure potential resources of some 15 million metric tons and thus to produce half a million tons annually for the subsequent period of 30 years in which the company will be in existence.

The cost of prospecting under the program is estimated at 23 million yen, of which 12.8 million yen is to be subsidized by the Japanese government. In addition the government guarantees the payment of capital and interest on the company's debenture issue of five million yen. All these financial arrangements were approved by the diet under the additional estimates for 1936-37.

Plan for Petroleum Production (Metric Tons)

	Production	Shipments
1937.....	262,500	230,000
1938.....	330,500	254,000
1939.....	400,600	300,000
1940.....	449,800	355,000
1941.....	460,400	365,000

Equipment is to be installed at the producing wells at the expense of the company, and the total disbursements to be made under this head before the end of five years are estimated at approximately 50 million yen.

However, later developments, including the China conflict and the strained relations with the Soviet Union, have not only made this investment impracticable but have even darkened the outlook for the five-year-plan itself.

Since the outbreak of the China incident the Soviet Union has definitely assumed a new attitude, applying pressure upon Japanese rights in North Saghalien and considerably hampering the business of the company.

Geological parties busy in southeastern Iran

A group of parties headed by Frederick G. Clapp, Lester S. Thompson, Dr. Hubert G. Schenck and Henry Hotchkiss are engaged in surveying the vast basin areas of southeastern Iran, operating from temporary offices at Zahidan, Province of Makran. Clapp recently drove across from the fields of Inland Exploration Company in Afghanistan to supervise this work.

Thompson is in local charge for Amiranian Oil Company in this part of Iran. Schenck is conducting paleontological researches through the great thicknesses of Lower Tertiary and Upper Cretaceous sediments in that part of the country. Hotchkiss, until recently assisted by H. A. Afshar, is making detailed surveys on some of the attractive structures. E. Gardner Clapp is employed on some of the technical and administrative phases of the surveys, at times in Zahidan.

Canadian tariff hearings to resume

The Canadian tariff board will resume its inquiry into the Dominion oil situation Monday (April 4) after a recess of seven weeks to permit Western producers and representatives of the Alberta government to confer with railway officials in an effort to obtain freight rate concessions on Turner Valley crude shipped to Eastern and British Columbia refining points.

Following protests late last year by Alberta operators who alleged that major companies were continuing purchases of United States crude and not providing a market for Canada's growing and major oil field, Turner Valley, Dominion Finance Minister Dunning authorized the inquiry. Hearings opened in Calgary late in January and were continued at Ottawa early in February.

Alberta independent producers, organized as the Petroleum Producers' Association, have assured the board that they sought no increase in tariff on crude or refined products shipped into Canada from the United States, but a program "to reach eastern markets through cooperation of the governments and railways, the producers and refiners."

While major Canadian companies have since discontinued purchases of Montana crude in favor of that produced in Alberta, the Montana crude price structure remains as a threat to producers north of the line. Based on reported prices of between 85 and 90 cents a barrel for Montana crude, British American Oil Company, Ltd., woud be able to operate more profitably if it opened its Coutts, Alberta, refinery and used Montana crude to supply Southern Saskatchewan and Alberta rather than to keep on supplying that territory from Calgary and Moose Jaw refineries using the Turner Valley product.

Matters before the board are the advisability of continuing the present policy of prorating production in Turner Valley, where the allowed yield is now 42 percent of potential, methods of gathering and transporting crude from wells to refineries by pipe line and railway, freight rates, distribution, the area economically available to Turner Valley operators, and customs duties on crude petroleum.

MEXICAN

Completions

FEBRUARY

Company, Well and Location	Init. Prod Bbls.	Depth
Petrolera Veracruzana, S. A., San Carlos 1-V, Minitatlan, Ver.....	262	2235
Teodoro Arriaga, Arriaga 2, Altamaria, Tamaulipas	*	1985
Consolidated Oil Cos. of Mexico, Carlos Cantu 4, Gen. Bravo, Nuevo Leon	*	6825
Hamilton & Devine, Delgado 7, Altamira, Tamaulipas	*	2145

*Failures; †Junked; ¶Million cu. ft. gas.

CALIFORNIA FIELDS

World's deepest drilled hole quits at 15,004 feet.

* * *

Core recovers shaly sand at 14,977 to 14,900 feet.

* * *

Will plug back to test sand logged around 13,000 feet.

Los Angeles.—Officials of Continental Oil Company went into a conference here Friday morning to determine what course to follow in KCL A-2, Section 8-27-24, near Wasco, Kern County, which has stopped drilling with bottom of the hole at 15,004 feet in hard sand and shaly-sand formation.

Company officials stated that 11 feet of sand and shaly-sand was recovered in a core between 14,977 feet and 14,990 feet, and that the crew was endeavoring to come out with another core. It was indicated that the bottom had been reached.

The special meeting to determine the future of this record deep hole was called by R. E. Collom, in charge of Continental Oil Company's California operations. He met with A. H. Bell, general superintendent, and F. E. Minshall, assistant to Collom.

It has been unofficially stated that the well will be plugged back and tested in easy stages for the purpose of learning if a zone around 13,000 feet would prove to be commercially productive. It was at this point that favorable oil and gas showings were encountered, but the company decided to explore deeper.

Considering the size of the bit at present depth and the excessive temperatures found at bottom of the hole, the deep test had fewer delays than generally experienced. It had one fishing job. During the latter stages of drilling, the bit made from 55 feet to 65 feet every 24 hours.

Failure of survey instruments was blamed on the heat at bottom of the hole. Instruments melted and it was impossible to learn the actual drift, although it was said bottom was only 24 feet off vertical.

The test was spudded June 25, 1937, for what was expected to be a routine operation in unproven territory. The acreage involved is on a line with recent discoveries northwest of Bakersfield, where extreme deep production has been developed at Rio Bravo, Canal, Ten Section and Greeley fields, all situated on the floor of the San Joaquin Valley.

Union Oil Company is preparing to bring in another well in the Rio Bravo field, Kern County, where deep zone producers are no longer a novelty. The company's KCL 2-34, Section 34-28-25, is at 11,204 feet with 7⅝-inch casing cemented at 11,200 feet. It swabbed down to 6500 feet and was standing for a water shutoff when it staged a gas blow that raised the fluid level to 900 feet. Later, a survey revealed that the casing had collapsed at 6500 feet, believed due to gas pressure. Fishing was under way late last week.

Coring is under way in Superior Oil Company's Geissinger 1, Section 35-28-25, at Rio Bravo. Exploring to 11,248 feet, 7⅝-inch casing was cemented at 11,238 feet and water shutoff test was successful. Approximately 15 feet more of oil sand is expected to be cored before an attempt is made to complete. Superior's Ruhl 1, Section 1-29-25, is coring below 11,283 feet and has not encountered top of the oil sand. Wagner 2, Section 35-28-25 is coring below 11,215 feet in shale.

The Canal field, latest discovery in Kern County, is expected to record two completions shortly, as Ohio Oil Company's KCL E-5, Section 14-30-25 has encountered top of the oil sand at 8090 feet and is coring below 8200 feet, while Shell Oil Company's KCL A-2, Section 13-30-25 tapped oil sand at 8176 feet and is coring below 8225 feet. This field is yet to be defined, which accounts for increased activity.

Since the Randolph Community 2 exploratory test, drilled at Semi Tropic gas field by Standard Oil Company, was the first to develop Pliocene production in the state, there is a belief that the well has greater significance than at first admitted. This project prospected to 9356 feet and was plugged at 7630 feet, with 7-inch cemented at 7400 feet. With the installation of a compressor, fluid recovery has been about 200 barrels daily, cutting 40 percent water. The fact that oil has been developed in the center of a dry gas field, is important, and there is a strong possibility that other tests will be drilled.

Several new plays are in the offing, one to be drilled in Section 22-4-10, Orange County, by the A. & B. Oil & Gas Company. Location for this project has been staked near the corner of Ball Road and 101 Highway, and is ½ mile west of Shell Oil Company's Mathis 1, which failed to develop anything of interest when drilled to 5944 feet .

At Rosedale, Kern County, Union Oil Company acquired 720 acres, situated in Section 7-29-27 and Section 8-29-27 and is scheduled to launch a wildcat within 90 days. This undertaking will test an area about two miles northwest of the Fruitvale field.

During a four-hour potential test, Hancock Oil Company et al's Brown 3 in the Santa Maria Valley field produced at the rate of 1500 barrels daily from 4272 feet. It has been choked in as an aid to the oil curtailment program. Pacific Western Oil Company's Samarin 3 with bottom at 4904 feet has landed string preparatory to completing. Top of the Monterey shale was topped at 4450 feet. Petroleum Equities, Inc., is completing Webber 1 at 4318 feet, while Petroleum Securities Company's Carey 1, with bottom at 5320 feet is expected to be swabbed for production in a few days.

To Drill 26

Richfield Oil Corporation attracted new attenion to the Long Beach Harbor area when it took out permits for construction of 26 steel derricks.

These wells are to be drilled on a block of 100 acres known as the Pacific Dock & Terminal site, north of Channel Two and the Turning Basin, not far from the Ford plant.

The permit followed an agreement between Richfield Oil Corporation and the Long Beach Harbor Department through which the latter is granted four derrick sites from which to whipstock wells under the ship channel.

In the same field General Petroleum Corporation completed Espee 4 at 4000 feet, for 2500 barrels a day. Superior Oil Company has just completed two Ranger zone wells, Back Bay 2 for 412 barrels and Back Bay 3 for 414 barrels, and has plugged back Ocean Front 1 from Terminal depth to the Ranger zone at 2900 feet, preparatory to completion. Seaside 1 should be completed in a day or two.

Another exploratory job will be drilled northwest of Long Beach by Richfield Oil Corporation, this project going down on the Bixby property and close in to the operator's Bixby 4 which recently came in for 460 barrels of 23.7 gravity oil per day at 4225 feet.

New life has been generated for the west side of the Montebello oil field due to the completion of Monterey 24 by St. Helens Petroleum Company. With bottom at 5450 feet, this project

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swabbed in for an estimated yield of 1000 barrels of 34.3 gravity oil per day along with 1,500,000 cubic feet of gas. Indications are that this well proves the possibility of developing substantial production in the Fifth Zone.

Oil that tested 62 gravity flowed from Standard Oil Company's KCL 11-13, Section 20-29-26 in southeast Greeley field. This project swabbed in from 7740 feet along with approximately 9,000,000 cubic feet of gas. The oil is the lightest gravity of any of the wells yet completed in the "gasoline spot" of this field, and possibly of any wells in the state. The well was permitted to flow for a limited time and later killed to permit deepening to take in more of the productive formation. It will be recompleted in a few more days.

A novel test is reportedly under way six miles west of the Tracy gas field, where Standard Oil Company has been active in the development of gas wells. The company's Zuckerman 1, Section 25-2-4, is being equipped with a gas-lift, bottom having been plugged at 5275 feet, where a substantial flow has been found. Originally, this test had explored to 8810 feet without results, but when plugged back a second test revealed a good show of gas. Lifting gas by gas-lift is a new thing for Pacifiic Coast operators.

Los Angeles.—Precautionary measures to avert possible disaster by fire through abnormal conditions created by intense oil drilling and storage at the ports of Los Angeles and Long Beach are being considered by a special committee in a report to the harbor commission. This special committee, composed of members of the harbor, foreign commerce, and shipping committees of the Los Angeles Chamber of Commerce, began a survey last April to determine steps necessary in removing the risks in handling and storing large quantities of inflammable liquid on and adjacent to the waterfront. Among their recommendations they suggested improvements in the fire alam system, in the fire-fighting equipment, and the need for a fireboat. Oil companies and the railroads at the harbor have agreed to pool their equipment for fire fighting in case of fire.

CALIFORNIA
Completions

Company, Well and Location	Init. Prod Bbls.	Depth
BELLVIEW—		
Continental, KCL D-1	*	8472
GREELEY—		
Standard, Fleishauer Comm. 2	*	8148
KCL 11-12	*	8023
KCL 12-4	*	8253
McKITTRICK—		
Rocima, Laymance 1	*	3125
SANTA RITA HILLS—		
O. C. Field, Santa Rita 1	*	3360
STOCKTON—		
Standard, Weyl-Zuckerman 2	¶25	8810
SANTA MARIA VALLEY—		
R. R. Bush, Brown 3	1500	4272
MIDWAY-SUNSET—		
C. C. M. O., Tumbador 4	27	2439
YORBA LINDA—		
Beth Petroleum, Pickering 1	50	2311
TORRANCE—		
Superior, Torrance 5	220	4959
WILMINGTON—		
General, Channel Comm. (LB) 1	220	3165
Ford (LB) 39	1100	4100
S. P. (LB) 4	1001	4000
Hancock, Harbor (LB) A-3	2605	4045
Superior-Jergins, Backbay Tract (LB) 2	368	2996
Backbay Tract (LB) 3	405	2959

*Failures; †Junked; ¶Million cu. ft. gas.

Villines et al open new pool in Seminole County.

* * *

New Payne County field looms near West Norfolk.

* * *

Miller extends northwest edge of Cement pool.

Tulsa.—Two new pools were opened in Oklahoma last week. The first in Seminole County and the second hit was two miles west of the West Norfolk pool, Payne County, and opened Wilcox sand production.

The new pool opened between the St. Louis district of Pottawatomie County and the Little River pool of Seminole County was by W. A. Villines et al's Swan 1, NW NE NW 26-7n-5e. Drilled to 2994½ feet in Turman sand, the well set pipe at 2985 feet and after showing considerable gas, filled at the rate of 400 barrels of oil daily. On a later test, it swabbed 105 barrels of oil in 15 hours. Drilled ahead to 3001 feet in shale, the well swabbed 135 barrels of oil in 24 hours and was preparing for a potential test. Top of the sand was at 2997 feet. It was supported by several major and independent companies. Another test was getting started to the northeast at Greer's Swan 1, NW NE NE 25-7n-5e, which was completing cellar and pits.

Strike in Wilcox

Two miles west of the West Norfolk pool in eastern Payne County, Kemp & Hart's Rafferty 1, SEc NE 6-18n-5e, drilled into the Wilcox sand at 3665 feet and found gas in such volume it blew tools up the hole and developed a fishing job. The well made two good flows of oil despite the obstruction, and a control head and tankage have been set at the well pending recovery of the tools. It has between 8,000,000 and 10,000,000 cubic feet of gas in the Skinner sand at 3120 to 3140 feet. It was bradenheaded for future use.

Stanolind Oil & Gas Company drilled Bryant 1, NW SE SE 6-18n-5e, several years ago, but after getting a good show of oil from 3680 to 3686 feet, lost the hole at 3699 feet. The new discovery is said to be on a high surveyed by Stanolind and Amerada Petroleum Corporation.

At the south end of Ramsey pool of Payne County, E. H. Moore's Boyd 1, NEc 24-18n-1e, was looking bad, running nearly 200 feet lower on the Hunton lime than the discovery well of the pool. When last reported, however, the well had recovered the fish and was drilling below 4815 feet. It had Misener sand at 4763 feet and went into Hunton lime at 4766 feet. A core from 4774 to 4794 feet had a 17-foot recovery with slight stains of oil.

Five miles due south of the pool, The Texas Company made location for Longan 1, NWc 12-17n-1e. It is thought the new test is directly in line with

OKLAHOMA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY		
Gulf Oil, Smith 1, c sw sw 26-2s-3w (owdd)	648	7920
Sun Oil, Mullm "A" 18, nw sw ne 4-4s-3w	27	1064
Shell Oil, Horton 17, (Twin), ne sw sw ne 6-4s-3w	30	1152
CHOCTAW COUNTY—		
Chapman & Low, Hallum 1, ne ne nw nw 4-7s-20e (owdd)	*	815
GARVIN COUNTY—		
Simpson-Fell Oil, Derdeyn 11, ce½ sw nw 17-1n-3w	12	1700
KIOWA COUNTY—		
R. H. Burns et al, Webster 3 (Twin) ne ne ne 2-6n-17w	*	1130
Principle Oil Co., Carlton 1, se se nw 26-7n-20w	lcn.	abd.
LOGAN COUNTY—		
Amerada & Stano., Knight 2, ne se sw 12-17n-1w	216	5100
MUSKOGEE COUNTY—		
J. L. Parks, Hilderbrand 1, sw nw se 17-14n-19e	¶¾	656
OKLAHOMA COUNTY—		
Olson Oil, Crawford 2, nw nw ne sw 15-12n-3w	2322	6475
OKMULGEE COUNTY—		
Lease Investment, McAllister 1, nw ne nw 6-14n-11e	*	3500
OSAGE COUNTY—		
Okla. Nat. Gas, Osage 1949, se nw nw sw 17-20n-12e	¶9	1826
Branstetter, Osage 1, sw nw se 23-22n-11e	*	2218
Pure Oil, Osage 106, se ne sw 9-23n-8e (owdd)	27	2375
PONTOTOC COUNTY—		
Kerlyn Oil Co., Nix 1, ce½ nw se 1-1n-7e	131	4240
F. W. Merrick, Balthrop 3, e½ se ne se 10-4n-6e	¶2	1162
Magnolia, Reed 3, ne sw ne 26-5n-7e	125	4812
POTTAWATOMIE COUNTY—		
Hall & O'Mera, Shaw 1, ne ne se 32-6n-5e	*	3346
Gulf Oil Corporation, Benjamin "A" 1, sw se nw 13-7n-4e	110	4164
Mid-Continent Pet., R. McClellan 1, sw sw nw 19-11n-5e	*	4904
SEMINOLE COUNTY—		
Bryan Pet., Sam Walker 2, nw se se 4-7n-6e	*	2882
Sinclair Prairie, J. R. Stubbs 4, ne ne ne 18-9n-7e	145	3481
TILLMAN COUNTY—		
Gibson & Jennings, M. Burleson 1, se se sw 35-2s-19w	*	3303

*Failures; †Junked; ¶Million cu. ft. gas.

the trend said to run in a general north-south direction through the field proper, which boasts four producers and two drilling wells at present.

Disappointment

Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Ridgway 1, NW NE NE 24-3s-9e, southeast of Boggy Depot in Atoka County, appeared to be a disappointment last week. On a drill stem test with packer set at 3660 feet, the well, opened for two hours, filled 2575 feet with salt water. When cored to 3676 feet before the test, the recovery showed six inches of sand with a bleeding core and stains of oil in the cuttings. A drill stem test at 3656 feet showed only 60 feet of mud and 180 feet of salt water. It may be cored deeper.

West of Citra in Hughes County, E. H. Moore's Hunter 1, NEc NW 30-4n-9e, recovered a 10-foot core from 3965 to 3975 feet in Cromwell sand which had a spotted show of dead oil and an odor of sulphur. It was drilling ahead below 4080 feet.

The research department of Phillips Petroleum Company has taken over operation of Beeker 1, NE NW SW 8-5n-10e, in the Calvin area of Hughes County. On the last test it made 83 barrels of oil in 19 hours through a ⅛-inch choke.

Ardmore District

The northwest edge of the Cement pool of Caddo County was extended one quarter-mile at W. L. Miller et al's Garner 2, SW NW SW 26-6n-10w, which was flowing at the rate of 80 barrels of oil per hour through tubing. Production was from perforations between 3995 and 4028 feet, accompanied by 4,547,000 cubic feet of gas. It was shut down to install bottom-hole choke and a separator.

More trouble was reported from Gulf Oil Corporation's Thomas 1, SW NW NW 14-4n-5w, south of Bradley in Grady County. Drilling was stopped at 11,425 feet while operators attempted to shoot off frozen drill pipe at 11,020 feet and again at 11,375 feet. The test is scheduled to go to 15,000 feet.

Southern Oklahoma's other deep test, Coline Oil Company's Johnson 1, SW SE NE 1-2n-8w, northwest of Marlow in Stephens County, was attempting to knock out a bridge at 8904 feet. It is at a plug-back depth of 9086 feet.

Oklahoma City Sector

The dolomite sector of the Oklahoma City field was given an extension last week at Stahl Petroleum Company's Slaughter 1, SWc 15-12n-3w. Drilled to 6395 feet in the zone, the well was acidized and flowed 1471 barrels of oil in 14 hours. It is expected some 25 new tests will be drilled in the immediate vicinity as a result.

W. M. IRISH, III, vice president of Atlantic Petroleum Purchasing Corporation, only survivor of an airplane crash near Corpus Christi on March 4 that took the lives of two oil men and the pilot, is recovering in the Medical Arts Hospital, Dallas. He is permitted to receive visitors.

KANSAS FIELDS

Jones and Shelburne have new pool near Letsch.

* * *

May get oil farther northwest along Kansas uplift.

* * *

Wildcat west of Ellinwood shows as pool opener.

Wichita.—With one new pool definitely written into the records and four other areas getting wells with strong shows, Kansas operators reversed the usual run of drilling activity to conclude one of the most profitable weeks since the first of the year. Russell County had the new pool, while another well in the same county was showing for a producer. Graham, Reno and Barton counties also reported wells which may open new areas to production.

The pool opener in Russell County was Jones & Shelburne's Kuhnle 1, SEc NW 4-15s-12w, five miles southeast of the Letsch pool. Drilled to 3045 feet in Lansing lime, the well was making strong shows as a producer, filling 2500 feet with oil in three hours. The oil is coming from the second break in the lime, topped at 2955 feet. Pay zone is between 3040 and 3045 feet. Casing has been cemented preparatory to a test.

Graham County Test Shows

Contention that production is bound to extend farther northwest along the Central Kansas uplift received a substantial boost last week at Continental Oil Company and Cities Service Oil Company's Trexler 1, CE½ W½ NE 15-9s-12w, which was making strong shows as a pool opener, filling 800 feet with oil after plugs were drilled at 3718 feet in Siliceous lime, topped at 3712 feet. The fill-up occurred in one hour. The test, located 15 miles southeast of Hill City in Graham County, was to receive more extensive tests over the week end. It was deepened to 3720 feet but no increase in production was noted.

Another pool for Russel County may be at Parks et al's Gorham Estate 1, SW NW NE 19-15n-15w, 1½ miles southwest of the Steinert pool. The hole filled 800 feet with oil in 6½ hours from Kansas City lime at 3118 feet and operators were running casing for a test.

In Reno County, 7-inch casing was being run at Amerada Petroleum Corporation and Westgate-Greenland Oil Company's Johns 1, SEc 25-22s-5w, six miles northeast of Hutchinson. A drill stem test showed 250 feet of oil in the hole after a saturated core was recovered from 3898 to 3903 feet in Wilcox sand. Nearest production is 6 miles due east in the Hollow-Nikkel pool of Harvey County.

What looks to be a new pool two miles west of the Ellinwood pool of Barton County was reported last week at Crown Petroleum Company's Schartz 1, SW SE NW 7-20s-11w, which filled with oil after drilling to 3349 feet in Siliceous lime. Operators were running 7-inch casing preparatory to testing.

Sittner Extension Assured

Extension of the Sittner pool of Stafford County one mile west was assured as Torry & Feaster continued testing at Mueller 1, SEc 29-21s-12w. The well made 75 barrels of oil in one hour on preliminary tests at 3605 feet in Siliceous lime. Following acidization at that depth, the well was producing 1210 barrels of oil per day.

One-half mile west of production in the Wherry pool of Rice County, Mid-Plains Oil Corporation's Van Blarcom 1, CEL NW 10-21s-7w, was estimated good for 1200 barrels of oil daily to extend the pool. Production followed drilling of plugs at 3375 feet in conglomerate, with the first oil showing at 3364 feet. It was flowing by heads. Mid-Plains has started Whinery 1, SWc NE

Seek spacing rule in Kansas for first time

For the first time in the history of Kansas proration, a group of operators has presented an application to the corporation commission requesting orders, rules and regulations for establishing drilling units and well spacing in the Zenith sand pool of Stafford County. Hearing has been scheduled for April 7 at Wichita.

The application was filed by Stanolind Oil & Gas Company, Continental Oil Company, Tide Water Associated Oil Company, E. H. Moore, Inc., and Pure Oil Company.

Such a plan was talked of between operators in the Stoltenberg pool of Ellsworth County some time ago, but no concerted effort was made to present the plan to the corporation commission. Companies making application have pointed out that the plan may be the solution to the present problem of increasing potentials and diminishing allowables.

10-21s-17w, an east offset to the new producer.

Kraft pool of Barton County was extended two locations north at Derby Oil Company's Frees 1, SWc SE 3-17s-11w, which recovered a saturated core of Siliceous lime from 3320 to 3330 feet. Casing was being run for a test. Shell Petroleum Corporation recently completed Burmeister 1, one-half mile south of the new producer, for a potential of 2500 barrels daily. Frees 1 was reported checking a bit lower than the Shell test. The Kraft pool, producing from Siliceous lime at around 3288 feet, was opened in 1937.

The east edge of Wellington pool of Sumner County was partially defined as Stanolind Oil & Gas Company and Amerada Petroleum Corporation's Frambers 1, SWc NW 34-31s-1w, one-quarter mile east of the pool, had Mississippi chat from 3659½ to 3700 feet and made about 4 gallons of oil an hour. It was shut down for orders.

In the Marshall Ranch area of Ellis County, Atlantic Oil Investment Company's Jensen 1, CW½ SW 12-12s-18w, recovered a 4-foot core with good saturation from 3624 to 3639 feet in Siliceous lime. The test is considerably higher than two offsetting wells.

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Polk & Fortson, Kultgen 1, ne ne sw 16-16s-12w	*	3385
Shell Pet., Schneider "B" 4, 1-16s-14w	1166	3305
Transwestern Oil, Fee 2, se se se 12-17s-11w	960	3231
Skelly Oil, Grossardt 1, ne ne ne 15-17s-11w	156	3329
Aylward Prod., Wissman 2, cw½ w½ nw 31-18s-15w	958	3378
BUTLER COUNTY—		
Adair & Morton, Brandt 3, nw ne nw se 15-28s-7e	75	2711
CHAUTAUQUA COUNTY—		
Sagamore O&G, Landon & Floyd, ce¼ se nw 32-32s-11e	5	2286
Sooby et al, Davis 1, sw ne nw 29-33s-10e	4	1548
ELLIS COUNTY—		
Sinclair Prairie, Cress 4, sw se ne 13-11s-17w	1050	3355
Cities Service Oil, Hall "B" 8, nw nw sw 26-11s-17w	2359	3438
York State Oil, Bemis 3, ne nw sw 28-11s-17w	1182	3459
GREENWOOD COUNTY—		
Landon & Mendanhall, Slough 1, ne ne sw 9-24s-13e	*	1980
RICE COUNTY—		
Continental et al, Warner "A" 1, ne ne nw 36-18s-8w	2570	3216
Simpson & Noble et al, Dick 1, ne nw nw 3-20s-11w	258	3320
Magnolia Pet., Anna Roetzel 5, nw sw ne 25-20s-11w	1668	3277
Republic Nat'l Gas, Oden 2, sw nw nw 5-21s-7w (owpb)	15	3353
RENO COUNTY—		
Transwestern Oil, Teten 3, nw sw ne 12-23s-4w	692	3453
Tetel 4, sw nw se 12-23s-4w	448	3423
Campbell & Davis, Welch "B" 2, c ne se 4-24s-4w	901	3375
RUSSELL COUNTY—		
B. B. & M. Pet., et al, Gaynor 1-A (TW) se se nw 19-13s-14w	863	2978
Continental, H. Rein "A" 1, nw nw sw 27-14s-13w	1813	2917
Cities Service Oil, Graham 1, sw sw nw 28-14s-13w	1518	2926
Magnolia Pet., Brandenburg Hrs. 1, nw nw sw 20-14s-14w	*	3283
Helmerich & Payne et al, Hall 1, sw sw nw 22-14s-14w	981	3084
Cities Service Oil, Strecker "A" 8, nw ne ne 35-14s-14w	1239	3318
STAFFORD COUNTY—		
Royal Oil & Gas, Sittner 1, nw nw se 33-21s-12w	1307	3630
WOODSON COUNTY—		
Sheedy et al, Klick 12, c nl sw se 20-25s-14e	40	1453
COWLEY COUNTY—		
E. B. Shawver 3, sw se ne 3-20s-4e	*	2982
Arthur Brewer Co., Clark 1-A, e½ ne se nw 6-31s-4e	116	2874

*Failures; †Junked; ¶Million cu. ft. gas.

Getty may merge with Mission

Los Angeles.—A series of meetings to consider the merging of the vast oil holdings of the George F. Getty, Inc., and Pacific Western Oil Corporation with those of Mission Corporation through an exchange of Mission Corporation stock are scheduled to start here beginning Monday, April 4. Under the proposed plan Mission Corporation would become an operating company, holding all the properties of George F. Getty and Pacific Western.

Advantages of this merger include the bringing under one organization the holdings of Tide Water Associated Oil Company stock, the elimination of Mission Corporation as a holding company, saving in taxes and the removal of considerable duplication existing at the present time.

Under the present set-up George F. Getty, Inc., controlled by the J. Paul Getty interests, in turn controls Pacific Western Oil Corporation. The latter own working control of Mission Corporation through a 46 percent ownership of its outstanding stock. Mission Corporation's principal assets are a 56 percent interest in the common stock of Skelly Oil Company, approximately 15 percent in the common stock of Tide Water Associated and 9400 shares of Pacific Western capital stock. In addition to the Mission Corporation holdings of Tide Water Associated, Pacific Western owns around 300,000 shares and George F. Getty, Inc., likewise owns stock in Tide Water Associated. Until present appraisals have been completed there is no way of determining the number of Mission shares required to acquire the George F. Getty property.

While no present consideration will be given at this time it was indicated that a merger of the physical properties of Skelly Oil Company with Mission Corporation may be considered at a later date.

Pecos, Texas.—Consumers' Association, headed by Sam Foster, is erecting a 200-barrel capacity lubricating oil refinery at Pecos. It will operate on low-gravity crude produced in the Courtney-Pryor pool, near Fort Stockton, Pecos County. Crude deliveries will be made by tank trucks.

Wichita Falls, Texas. — Continental Oil Company has authorized the erection of a 15,000,000 cubic foot daily capacity natural gasoline plant in the K-M-A field, Wichita County. The company holds lease on a large amount of proved acreage in the area, and is making long-term gas purchase contracts.

NEW MEXICO

Vacuum extension wildcat showing favorable signs

Hobbs, N. M.—A wildcat project situated 4-1/3 miles northwest of production in the Vacuum field, Lea County, and beyond two failures that showed for small oil wells along this trend, is checking higher structurally than the latter. This new development for the Vacuum area, which may embrace an unusually large productive territory, is centered upon Repollo Oil Company's State 1-197, SE SE 6-17s-34e, top of anhydrite was logged at 1540 feet and base of salt at 2640 feet, with an elevation of 4118 feet. It is checking 45 feet higher on the Yates sand marker than The Texas Company et al's State 1-D, situated 1½ miles south by east, and 130 feet higher than the same marker recorded by Inglefield et al's State 1, located 2 miles to the east. The latter were drilled before the Vacuum field attained prominence, and are probably near the edge of the structure. Repollo Oil Company is changing to cable tools at 2770 feet after landing 9-inch pipe.

Another southeast outpost for Vacuum is getting underway. The Texas Company made location for State 1-P, C NW SE 7-18s-35e, 1-2/3 miles south by east of nearest production. Continental Oil Company et al's State 1-I-16, C NW NE 16-17s-34e, previously announced project, was drilling below surface pipe. The latter's State 1-G, and Shell Petroleum Corporation's State 1-A, intermediate prospects for the Vacuum-Monument trend, were drilling at 4134 feet and 4350 feet, respectively. Both are checking low and are considered too far east of the trend to produce.

Phillips Petroleum Company's State-Santa Fe 1, offsetting production in the southeast portion of the Vacuum field, flowed 361 barrels natural through tubing in 6 hours from lime at 4665 feet, with an

NEW MEXICO

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EDDY COUNTY—		
Grayburg Oil Co., Keely 4, se sw ne 24-17s-29e	100	3588
LEA COUNTY (Cooper)—		
Shell, Whitten 1, ne sw se 33-23s-36e	*	3810
LEA COUNTY (Eunice)—		
Gulf, Day 3, se se sw 6-22s-36e	529	3835
LEA COUNTY (Hardy)—		
Gulf, McCormack 3, c se se 32-21s-37e	120	3762
LEA COUNTY (Hobbs)—		
J. P. Cusack, Turner 1, sw se 34-18s-38e	600	4241
LEA COUNTY (Langlie)—		
Phillips-Pure, Woolworth 1, c se ne 33-24s-37e	750	3538
Sun, Stuart 4, c se ne 15-25s-37e	200	3364
LEA COUNTY (Lynn)—		
Shell, State 1-A, c nw se 16-23s-36e	125	3700
LEA COUNTY (Mattix)—		
Western Gas Co., Davis 1, c sw se 33-23s-37e	350	3601
LEA COUNTY (Vacuum)—		
Phillips, State-Santa Fe 1, c sw nw 31-17s-35e	1444	4655

*Failures; †Junked; ¶Million cu. ft. gas.

elevation of 3995 feet. Magnolia Petroleum Company's State 1-J, C NE SE 22-17s-34e, was drilling at 4663 feet, with increase in oil pay the last 15 feet. Shell's State 2-A, C SW NE 31-17s-35, is a new project.

Production allowable advantage heretofore enjoyed by Artesia district and Maljamar field operators over Lea County producers on the strength of the former participating in an export contract may be terminated. Per-well allowable in Lea County for the March 16-31 period was 61 barrels daily as compared to 100 barrels for the wells sharing the export outlet. Foreign sales have been slow in recent months for the Trans-Pecos Pipe Line Company, oil purchaser, and stocks have accumulated in the field and on the Texas Coast. It is reported that two of the owners of the Texas-New Mexico Pipe Line Company, which has been transporting the crude, will relieve the situation by purchasing a portion of the production that has been classed as export crude. In the meantime the oil conservation commission lowered the export volume from 4000 barrels to 3000 barrels effective April 1.

Lea County registered 9 new operations the past week, including 4 tests for the Langlie sandy-lime area.

The Texas Company's Fristoe 3, NW SE NE 3-25s-37e, flowed 205 barrels of oil in 8 hours through 7/8-inch choke after 140-quart shot in pay at 3410-80 feet. Rig was skidded south to drill Fristoe 4, NW NE SE 3-25s-37e.

Amerada Petroleum Corporation has derrick up for Stuart 1, NE SW NE 22-25s-37e, and Western Gas Company's Curry 1, C SE SE 1-24s-36e, was drilling below surface pipe. Culbertson & Irwin, Inc., has rigged up to drill Alston 3, NW NE NE 26-25s-37e.

Gulf Oil Corporation, one of the largest oil producers in the state and one of the most active in taking care of offsets and expiring leases, has farmed out a number of undrilled tracts in the sandy-lime belt in recent weeks. Lem Peters et al's May 1, C NW SE 27-22s-37e, southeast edge of the Penrose field, is a recent assignment.

H. J. Schafer et al's State 1-A, CE½ NW NE 26-20s-36e, is a minor outpost for the northwest rim of the Eunice lime area. The Texas Company has started operations on Black 3, C NW NE 21-24s-37e, Mattix area.

TEXAS PANHANDLE

Completions

Company, Well and Location	Init. Prod Bbls.	Depth
CARSON COUNTY—		
Magnolia, Fee (244) 37	236	2988
GRAY COUNTY—		
Bradshaw O&G Co., Arnold 7	789	3285
Gray County Prod. Corp., Chapman 4	1952	2612
Gulf, Hughey 1-A	677	3250
S. & M. Oil Co., Worley 2	720	3238
Sunray, Ferguson-Eddington 3	467	2934
HANSFORD COUNTY—		
Texas Mineral Inv. Co., Norton 1	¶¾	3311
HUTCHINSON COUNTY—		
Continental, Johnson 6-C	417	3065
Drilling & Exploration Co., Watkins 15	465	3022
Simpson Oil Co., C. S. Terry 3	581	3042
POTTER COUNTY—		
Canadian River Gas Co., Bivins 23-A	¶9½	3400

*Failures; †Junked; ¶Million cu. ft. gas.

WEST TEXAS FIELDS

Yoakum County sector of Wasson gets extension.

* * *

To drill wildcat between Seminole and Wasson.

* * *

Snyder field forging to front as drilling center.

Midland, Texas.—Wasson field, situated on the Yoakum-Gaines County line, has added a greater volume of proved acreage than any other West Texas area this year, and is only partially defined.

The east portion of the Yoakum County sector was expanded 2/3-mile to the northeast when Shell Petroleum Corporation's Geo. Baumgart 1-D, SWc Section 826, Block D, flowed 348 barrels oil and 760,000 feet of gas initial after using 5000 gallons of acid in lime at 5005 feet. Top of solid lime was logged at 4460 feet, with an elevation of 3562 feet, being 8 feet lower than the nearest producer.

Shell Petroleum Corporation's Dora Roberts 1, NW NW SE Section 793, situated more than a mile west by north of the northwest outpost producer, showed gas in the Yates section, and was drilling at 3830 feet. Top of anhydrite was called at 2070 feet, with an elevation of 3694 feet. This concern's Dowden 1, NEc NW Section 894, 2/3-mile southwest of production, was drilling at 3910 feet, having logged top of anhydrite at 2090 feet and first Yates at 2910 feet, with an elevation of 3599 feet. The Texas Company's Willard 3, C SE NW Section 799, offsetting production in the north sector, flowed 687 barrels oil initial after 3-stage acid treatment, aggregating 7000 gallons, in lime at 4933-5085 feet. Gaines County portion of the Wasson field is defined by failures and pumpers on the west, south and southeast.

Chas. M. Cope, Evertts et al have made location for T. S. Riley-Atlantic 1, C SW NW G. W. T. Section 249, Block G, Gaines County, situated four miles northwest of the Seminole field. It is on a direct strike between the latter and the Wasson area, and is rated as a good prospect. Atlantic Refining Company donated 80 acres and $7500 towards financing this project.

No Slump Yet

Drilling activity in West Texas has not registered the anticipated slump, and has apparently settled to a steady volume of from 35 to 45 new operations each week. Work is scattered sufficiently to forestall a sudden let-down. Ector County is the most active center, due to competitive drilling in the Goldsmith, Harper, Foster and Judkins areas, with a few rigs running in the North Cowden field. Wasson and Bennett fields are setting the pace for the north basin area. Fewer rigs are in service than normally in Winkler and Ward counties.

Snyder field, Howard County, is forging to the front as one of the busy drilling centers, and is apparently slated for important extensions along a trend towards the Denman and Chalk areas. Moore Brothers Corporation, discoverer of the Snyder field, is taking the lead in trying for extensions along a strike towards the Chalk field. This concern's W. P. Edwards 1, near SE NE NW T&P Section 44, Block 30, T-1-S, 2⅛ miles southwest of production, and same distance northeast of Lockhart Bros. et al's A. R. Huesinger 1, semi-wildcat producer, was drilling at 1400 feet, with an elevation of 2303 feet. Huesinger 1, SEc W&NW Section 67, Block 29, is showing for a commercial pumper after 940-quart shot at 2713-2860 feet, having plugged back from 2925 feet to 2875 feet. It is 1-2/3 miles northwest of nearest deep production in the Chalk field. Completed wells in the Snyder field cost about $18,000, and currently are prorated to 40 barrels daily.

Makes Oil While Crew Fishes

Choate & Hogan's University-Gulf 1, NE SW Section 17, Block 14, northwestern Crockett County wildcat and on a southeast trend from the McCamey district, averages 2/3 barrel oil per hour while fishing for tools at 1548 feet. Broken pay was logged at intervals below 1457 feet, with an elevation of 2371 feet. Deeper failures in the general area lessen the importance of this prospective producer.

Continental Oil Company's T. P. Land Trust 2-27, NEc T&P Section 27, offsetting production in the Harper field, Ector County, established a new potential mark in flowing 3000 barrels initial with 2,000,000 feet of gas following 240-quart nitro shot at 4050-4140 feet. Hole was drilled to 4180 feet. In the nearby Foster field, this company's J. L. Johnson 1, SE SE SW T&P Section 1, Block 43, T-2-S, responded to 400-quart shot at 4095-4245 feet with a flow of 700 barrels oil and 125 barrels water initial. It has an elevation of 2962 feet, and will require pumping equipment. An electrical formation surveying instrument indicated the presence of water at 4110-80 feet.

Gulf Oil Corporation has plugged

back two outpost tests for the Slaughter field, Hockley County, after establishing the water table at a lower sub-sea depth than was previously indicated by the discovery well. M. G. Gordon 1, 2/3-mile southeast of production, has plugged back from 5106 feet to 5079 feet, with top of cement at 5060 feet, having tested 120 barrels oil daily from the upper lime. Gulf Oil Corporation's Mallett 1, 1¾ miles southwest of the discovery, plugged back from 5125 feet, or 1573 feet sub-sea, to 5078 feet, with top of cement at 5055 feet. The latter showed about half barrel oil per hour in drilling through the lime section to water.

WEST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Fuhrman)—		
Fuhrman Pet. Corp., Ford 7	2779	4459
ANDREWS COUNTY (Means)—		
Humble, Means 39	525	4545
COCHRAN COUNTY (Wildcat)—		
Geo. P. Livermore (was Meeker et al), Wright 1	22	4997
CRANE COUNTY (Jordan)—		
Snowden & McSweeney, University 3	2180	3537
CROCKETT COUNTY (Hoover)—		
Sindorf & Stone, Hoover 1	*	2008
Stewart & Cormas, Hoover 1	92	1931
CULBERSON COUNTY—		
Grisham-Hunter Corp., Caldwell 1	*	550
ECTOR COUNTY (Foster)—		
Barnsdall, Foster 9	640	4225
Foster 10	1097	4230
Continental, Johnson 1	700	4245
ECTOR COUNTY (Goldsmith)—		
Devonian, Scharbauer 2-F	484	4204
Gulf, Goldsmith 78	2008	4250
Humble, Scharbauer 8-B	870	4256
Scharbauer 9-C	102	4190
Phillips-Pure, Cowden 18	2709	4168
Cowden 19	1679	4155
Cowden 20	4048	4168
ECTOR COUNTY (Harper)—		
Barnsdall, Cowden 6	915	4164
Continental, T. P. Land Trust 2-27	3010	4180
Mid-Continent, Cowden 4	2077	4165
L. H. Wentz Oil Co., Parker 5-D	1859	4212
ECTOR COUNTY (North Cowden)—		
Sun, Wight 6-B	667	4230
Tide Water and Atlantic, T. P. Land Trust 3	453	4238
FISHER COUNTY (Rotan)—		
Gen'l Crude Oil Co., W. L. Morrow 2	468	3518
FISHER COUNTY (Royston)—		
Gen'l Crude Oil Co., J. A. Young 7	18	3192
GAINES COUNTY (Wasson)—		
Shell, Robertson 1	*	5330
HOCKLEY COUNTY (Slaughter)—		
Honolulu Oil Corp., Slaughter 1-51	918	4973
JONES COUNTY—		
Fain-McGaha Oil Corp.-S. B. Roberts Co., Daugherty 2	415	1928
PECOS COUNTY (Pecos Valley)—		
Perry & Rodman, G. W. Potts 1	437	1797
REEVES COUNTY—		
Barnett Pet. Corp.-J. C. Hill & Conoco, Ely-Healy 1	†	4370
WARD COUNTY—		
Gulf, Estes 85	1064	2650
O'Brien 93	35	3184
Humble, Richter 33	573	2934
Johnson-Morrison & Johnson, Cummins 2	66	2235
Magnolia, Sealy 2-46	151	2856
T. P. Coal & Oil Co., H. James 24	352	2511
WINKLER COUNTY (Kermit)—		
Magnolia, Walton 138	189	3209
Walton 140	325	2934
Walton 142	449	2939
WINKLER COUNTY (Keystone)—		
Barnes et al, Crum 1	347	3306
WINKLER COUNTY (Scarborough)—		
Gulf, Daugherty 65 N	485	3025
Scarborough 2	173	3200
YOAKUM COUNTY (Bennett)—		
Honolulu Oil Corp.-Cascade Pet. Co., Bennett 2	564	5272
YOAKUM COUNTY (Wasson)—		
Wynne, Tr., Willard 2	409	5008

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH TEXAS FIELDS

Showings in west outposts forecast K-M-A extensions.

* * *

K-M-A allowable expanding faster than market demand.

* * *

Oklahomans purchase Panther area discovery block.

Wichita Falls, Texas. — Preliminary production tests given two west outposts for the K-M-A field forecast important extensions that will be factors in expanding drilling operations.

M. Staniforth & Company's Waggoner Bros. 1, SEc lot 9, H&TC Section 35, Block 7, 1¼ miles southwest of the most northwesterly flowing production, is rated at 175 barrels initial after using 3000 gallons of acid in broken pay at 3739-3803 feet. Seven-inch pipe was cemented at 3780 feet, and plugs drilled out to 3778 feet. Pipe was gun-perforated at 3745-57 feet with 126 shots to acidize saturated lime logged at 3739-53 feet. After recovering the acid load the well flowed a 65-barrel head of oil. It was shut in for 12 hours and flowed 350 barrels in 35 hours. Balance of the cement plug will be drilled out, with prospects of a production boost from sand at 3783-99 feet followed by sandy lime at 3799-3803 feet. Top of lime was called at 3665 feet, with an elevation of 1105 feet.

D. H. Bolin & Jim Whittington's Waggoner Bros. 1, SE SE SW H&TC Section 21, Block 7, 2¾ miles northwest of the Kadane sand area, is rated at 2400 barrels oil and 500,000 feet of gas initial after plugging back from 3974 feet to 3965 feet and gun-perforating 7-inch pipe, cemented at 3851 feet, with 60 shots below 3837 feet. This outpost has been in process of completion since mid-March, and was rated as a doubtful prospect in logging top of big lime at 3840 feet, with an elevation of 1075 feet, or 150 feet lower structurally than the nearest producer.

The above two tests are the first to introduce the gun-perforation method of completion in the field.

Bolin and Whittington are starting a second Strawn test, and also an 1800-foot project that will test oil sand passed up at 900, 1100 and 1800 feet. Sinclair Refining Company, pipe line division, proposes to lay 3 miles of 3-inch line to the producer.

Field Has 230 Producers

K-M-A was credited with 230 producing deep wells at the close of March, according to J. T. Elliott, Commission supervisor, but 40 of these had not been given official potential gauges. Allowables quota per well remained unchanged for the April period.

Allowable production of the K-M-A field is expanding faster than the market demand, due to completions averaging 20 per week, with sufficient new drilling scheduled to maintain this quota. Majors are purchasing all the deep production. They have discontinued active solicitation of well connections, and are no longer prompt in serving new completions. The area is served by The Texas Pipe Line Company, Sinclair Refining Company, pipe line division, Gulf Refining Company, pipe line division, Continental Pipe Line Company and Magnolia Pipe Line Company. Combined facilities of these 5 carriers, if utilized, is adequate to handle more than 50,000 barrels daily. However, demand for the high gravity oil is the governing factor.

Field Activity Peak

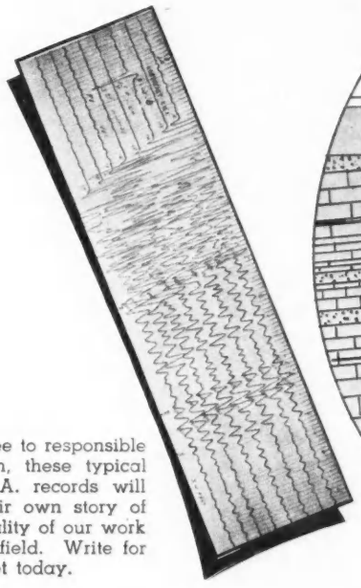
Field activity reached a new peak the past week, with 217 operations listed. Thirty new projects were added to the drilling report during this period, and 23 wells completed proration gauges. Active operations include 85 tests that are in process of completion or at the final casing point. Tests drilling between casing points totalled 48, as compared to 60 the previous week, and surface pipe has been cemented on 16 additional projects.

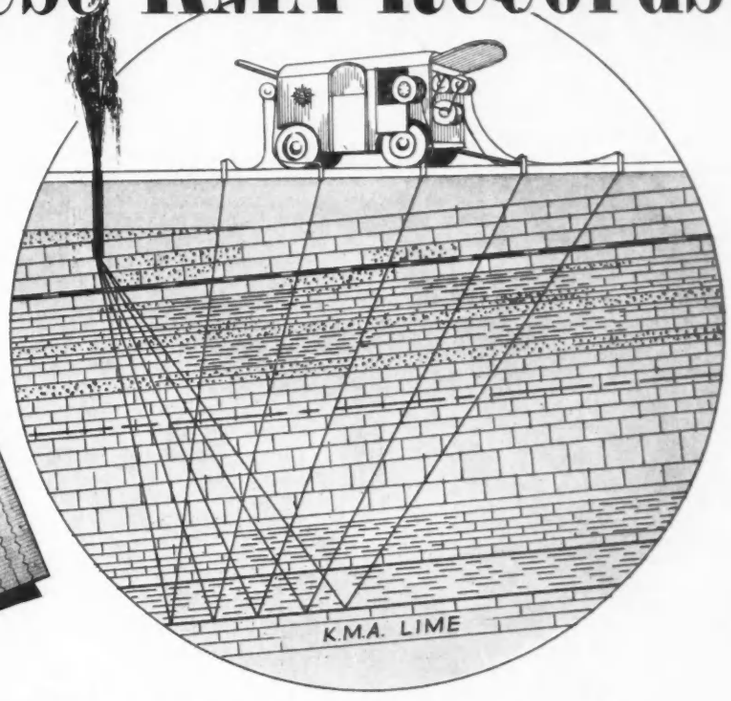
Heavy rainfall during the fore part of the past week retarded field work, and brought traffic over unimproved roads to a standstill. This condition will be reflected in the next activity report. Engineers at isolated booster stations operated by the Sinclair Refining Company substituted for pack horses, which are not available on short notice, in lugging fuel for gasoline engines in order to maintain normal crude runs.

Plug Southwest Extension Attempts

Prospective extensions to the southwest and northwest of the K-M-A area were given plugging orders. Lewis Production Company's Frey 1, 2-1/3 miles southwest of production and in Archer County, was abandoned after showing for 3 barrels oil daily following nitro shot at 3972-4052 feet, with the hole bottomed at 4127 feet. No water of any consequence was encountered, although the minor oil saturation was found at a

Look at these KMA Records





Sent free to responsible oil men, these typical K. M. A. records will tell their own story of the quality of our work in this field. Write for your set today.

LONG experience in mapping the dips of the K. M. A. pay, and ample facilities to give prompt service on contract jobs of any size are the two features offered clients. Early last fall we entered the area and ours was the first crew to take reflections off this now famous pay lime in the K. M. A. field. Today, four (4) crews and a division office at 623 Hamilton Bldg., Wichita Falls, are serving our clients in this field.

Smaller contract jobs carry the same assurance of thorough, skillful work as the very large ones. Every map and report submitted to our clients has behind it the combined experience of our 7-man supervisory staff, each of whom has from 10 to 13 years of geophysical work to his credit. This staff checks and correlates the work of our seasoned party chiefs who themselves have an average of 6½ years of geophysical field experience.

Our K. M. A. records are interesting, showing reflections from the top of the K. M. A. lime and are very accurate and readable. We will send any operator or geologist a set of typical records to illustrate this point, free of cost or obligation. Just make the request on your letterhead. Cost estimates on work in any part of the world will be furnished upon request.

INDEPENDENT

EXPLORATION IXC COMPANY

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lower sub-sea depth than the water table established on the southwest edge of the field. Clark-Cowden Drilling Corporation and Southwood Oil Company's W. T. Waggoner 1, A. Gibson Survey, A-455, northwest outpost, was abandoned after nitro shots with no oil showing. Hole was carried to Ellenberger at 3757-3840 feet, then plugged back to 3740 feet. F. W. Merrick et al's W. T. Waggoner 1, most northwestern Strawn project, is also conceded to be a failure. It was carried to Ellenberger at 3745-3814 feet, then plugged back to 3660 feet for a nitro shot.

Ryan Consolidated Petroleum Corporation's G. E. Nance 128, northwest edge S. O. Fowler Survey and a diagonal offset to 2 producers, developed hole full water after a 120-quart nitro shot followed by record size shot of 1000 quarts at 3908 feet. It occupies a favorable structural position in logging the top of the lime at 3611 feet, with an elevation of 1016 feet. Erratic sand and lime condition is the only explanation for this and earlier failures in assumed proved areas. J. J. McRoberts et al's Waggoner Bros. (14.4 acres) 1, NEc Lot 5, M. A. Willis Survey A-458, was carried to 4002 feet, with a little oil saturation in the regular pay zone. Top of lime was called at 3655 feet, with an elevatio nof 1048 feet.

Cullum, Kelleher & Riner's J. A. Kemp 1, NWc S½ Lot 4, Block 1, F. Peterswick Survey, south of prolific Kadane sand wells, showed trace of water when tested at 3893 feet, with an elevation of 1027 feet. The hole will be plugged back.

NORTH TEXAS

Completions

Company, Well and Location	Init. Prod Bbls.	Depth
ARCHER COUNTY—		
Burns et al, Cowan 3, sec 6.....	8	1100
CLAY COUNTY—		
Bridwell Oil Co., Thornberry 4, blk 5	150	1121
Franklin Drlg. Co., Staggs 1, blk 34	*	4850
Johnson et al, Gohlke 1, blk 15....	*	500
Metzner et al, Taylor 10	127	1125
Republic Nat'l Gas Co., Wyatt 81, blk 25	3	370
COOKE COUNTY—		
Bridwell Oil Co., Flusche 2.....	118	1209
Mildred Oil Co., Garrett 1.....	*	3620
Pace Pet. Co., Aldridge 2-B	*	1519
Robinson et al, Otto 13-A, blk 5..	70	892
Ruwaldt et al, Andress 4	7	1465
Texas Co., Truebenback 2-B.....	42	919
Trumter Oil Co., Andress 17.....	125	788
JACK COUNTY—		
Auers, Gwynn & Overby, Garrison 1, sec 3	12	3140
Butler & Horne, Henderson 1.....	*	3504
Nelson Oil Synd., Eatherly 3.....¶	4.2	3007
Van Eman & Richards, Whitsett 1	†	3384
MONTAGUE COUNTY—		
Hynds & Holcomb, Hinton 1.....	4	797
Seitz, Comegys & Seitz, Roach 1-B	35	1782
Sinclair Prairie-Gibson & Jennings, Holt 25, blk 45	30	1783
Holt 26, blk 45	33	1791
Holt 27, blk 45	*	1801
THROCKMORTON COUNTY—		
Deaner et al, Wilkinson 1, sec 934..	*	511
WICHITA COUNTY (K-M-A)—		
Barnes & Traugh, Kempner 1, blk 18	672	3824
Bishop Oil Co., Waggoner Bros. 1-B, blk 32	952	3856
Bohner et al, First Nat'l Co. 3-A, blk 26 2	904	3715
Bridwell Oil Co., First Nat'l Co. 1-A, blk 27	888	3852
Burns et al, First Nat'l Co. 26, blk 28 1	152	3879
Burns & Long, First Nat'l Co. 27-D, blk 26 1	344	3868
J. A. Chapman-Ed. McFarlin, Ferguson-Nazro 2, lot 3 1	160	3881
Davis et al, Mangold 1, blk 36.....1	680	3885
E. C. Oil Co., LeBus-Whitaker 4...	888	3808
W. B. Hamilton & J. A. Worsham, Martin 1, sec 12	648	3863
Jack Kadane, Kemp 2-B, lot 3 1	056	3770
Lewis Prod. Co., Wichita Nat'l Bank 5	528	3825
Manson Oil Co., Fassett-Tuttle 1, sec 2	750	3955
Murray & Griffey, J. R. Pace 1-A..	400	3901
Petroleum Producers Co., First Nat'l Co. 3-H, blk 28.....	650	3889
Prince Bros. et al, Sheldon 1 (2.9-ac)	640	3915
Rathke Oil Co. et al, Throckmorton 1	19	3697
Geo. B. Ray et al, Mitchell 1, blk 18	960	3878
J. I. Staley Oil Co., First Nat'l Co. 6, blk 44	712	3876
Sunray Oil Co., First Nat'l Co.-National 1, blk 28	550	3880
Trico Oil Co.-P. F. Rutledge, Hodges 1	344	3921
Vierson et al, Wigley 1	656	3847
Wallace et al, Strauss 1, blk 22....1	484	3870
T. West & Tom Medders, Williams-Parker 1, sec 25	*	4195
WICHITA COUNTY—		
Kriss et al, McDonald 1, blk 28....	2	536
Perkins & Cullum, Chilson 9, blk 12	*	711
Swanner et al, Norman 1.....	*	1872
Texas Co., Watts 1	*	1782
YOUNG COUNTY—		
Burns et al, Rogers 1, sec 222.....	*	987
Chambers & Humphreys, Benson 9, sec 1392	47	905
Echols & Echols, Gathright 1, sec 755	*	735
Kesterman et al, Finch 2, sec 38....	5	728
Stuckey O&G Co., Jeffery 1-A, sec 50	*	830
White & Duncan, Garvey 1, sec 291	*	712
Witt et al, Haygood 1, sec 1468....	*	751

*Failures; †Junked; ¶Million cu. ft. gas.

Hull and Silk Sell

Ownership of the prolific Strawn discovery in the Panther area, north central Archer County, and lease on 320 surrounding acres, was transferred to Oklahoma interests when L. V. Hull and W. W. Silk, veteran Wichita Falls oil men, elected to sell for a consideration of $965,000. Blackwell Oil & Gas Company, Cushing, purchased their one half working interest in the well and 160 acres, consisting of the SE¼ A.T.N.C.L. Section 25, and joined Helmerich & Payne, Incorporated, Tulsa, in acquiring Hull and Silk's full interest in the E½ of W½ Section, embracing 160 acres. This deal gives the joint purchasers, who paid $65,000 cash, $450,000 payable in 10 equal annual installments, and $450,000 from production, a 50-50 working interest in the two tracts, and they assume an obligation to drill a 5300-foot test. The discovery well, situated on the L. F. Wilson ranch, was completed March 14 in sandy-lime at 3839-58 feet, and later gauged 244 barrels of 42 gravity oil in 3 hours on ¾-inch tubing choke.

Completion of this wildcat as a producer has caused renewed interest in Archer County prospecting. The most interesting project is the J. K. L. Oil Company's H. Ford 1, T. Cecil Survey, A-982, four miles northeast of the Panther discovery. Drilling was in progress below 3500 feet.

Francis T. Haynes, San Antonio, and others have taken over Wayne King et al's J. C. Arthur 1, NW NW SW GH&SA Section 3, A-158, four miles south of Dundee, and will make a 4000-foot test. Surface pipe was set in January. Shappell Oil Company proposes to drill a 3750-foot test in Section 27, Clark & Plumb Sub-division, Block 5, three miles southeast of Archer City. Dr. Kenneth Van Allen, Boston, Massachusetts, et al contracted to start a 6000-foot test by July 25, 1938, in assembling a block around the town of Scotland.

EAST TEXAS

Houston County wildcat may produce.

★ ★ ★

East Texas deep outpost encounters Marine.

Tyler, Texas.—Northwestern Houston County wildcat drilled by Humble Oil & Refining Company and Sun Oil Company on the H. H. Dailey 1000-acre tract, J. L. Reviere Survey, 3½ miles southeast of Navarro Crossing, logged adequate sand, showing gas, to indicate that it will establish a new producing area for the south portion of the Woodbine belt. Woodbine was topped at 5790 feet, or 5526 feet below sea level, and the section was cored to 5880 feet, where the well showed good for 10 million feet of dry gas daily on drill stem test. It was then cored to 5890 feet, with slight oil saturation showing in the last core.

Location is in the northwest corner of the tract and survey being 1¼ miles northwest of Walter L. Goldston et al's B. W. Burns-Humble 1, which was abandoned August, 1936, when final drill stem test at 5875-99 feet yielded 150 feet of mud cut with light green oil and 800 feet of salt water and scum of oil. The latter logged top of Woodbine at 5830 feet, or 5575 feet sub-sea, being 49 feet lower structurally than Dailey 1. Showing made by the earlier prospect induced the companies to retain lease protection in the area.

Top of Lower Marine has been placd at 9407 feet in the Gregg County Wildcat of Humble and Gulf on the Robertson tract, 4 miles east of the East Texas field. The test was logging hard gray sand and shale in drilling at 9465 feet. Minor gas showings were reported near the top of the Marine zone.

The Texas Company's Jarrell 1, east edge test for the Flag Lake pool, northwestern Henderson County, was in process of completion late last week after coring Woodbine section at 3076-88½ feet, recovering about 2-1/3 feet of saturated sand. It has an elevation of 357 feet. Drill stem test made before running pipe showed 2300 feet oil in 10 minutes, indicating a good producer in spite of the thin pay section.

Order new East Texas well status report

The Texas Railroad Commission last week issued an order requiring a new well status report to be filed by East Texas operators on April 15. The order applies to those wells incapable of making their allowables or which are pumping, on artificial lift, and those which may be making water. The reports are to cover daily operations from April 1 to April 15, inclusive. The following data will be required:

The name of the operator; the name

of the lease; the well number; the survey on which the well is located; the county in which the well is located; the elevation of the well; the top of sand or producing horizon of each well and total depth of each well; the status of each well, as to whether it is flowing, pumping, on air or gas life, or dead; the current allowable of well; and the average daily production of oil and water in barrels; the per cent of water, together with a statement as to whether or not the well is currently making its allowable.

EAST TEXAS

Completions

Company, Well and Location	Init. Prod Bbls.	Depth
JOINER AREA—		
T. C. Adams & Geo. Despot, Deason 5 (6-ac)	1500	3710
Ambassador Oil Corp., Cunningham-Hamilton 5 (¼-ac)	6500	3760
Atlantic Ref. Co., Pinkston 17-A, (87-ac)	¶7800	3775
Chicago Oil Co., Alford 5 (7½-ac).	480	3655
Alford 7 (10-ac)	1500	3595
Fischer et al, Eaton 2 (25/100-ac)	4200	3761
Gulf, Johnson 11 (101½-ac)	120	3796
Jack Wiley 16 (100-ac)	4500	3690
W. B. Hamilton Pet. Co., Gambrell 17 (54.7-ac)	6000	3683
J. K. Hughes Oil Co., Wilson 4 (15.9-ac)	7600	3602
Humble, Wilson 12 (96.9-ac)	2400	3644
Ohio, Lunsford 13 (70.3-ac)	2200	3688
Shell, Brooks 23-A (174.69-ac)	1800	3747
Stanolind, Maxwell 32-A (108½-ac)	960	3797
Texas Trading Co., Deason 5 (6-ac)	280	3703
Ward Oil Corp., Thrash 42 (200-ac).	4000	3800
KILGORE AREA—		
Exum, Tr., Trapshooter Reilly O&R Co., Mitchell 9 (6¼-ac)	7500	3601
Gulf, Still 25 (166.36-ac)	3400	3556
Humble, Laird 95-B (568.53-ac)	3000	3577
Lawson & Roger Lacy, R. Lacy 4 (7-ac)	2500	3550
McVey et al, Laird 4, blk 137	1500	3542
H. R. Smith, Sanders 2 (66/100-ac)	4500	3560
Stanolind & Crosby, Terrell 7 (50-ac)	960	3714
Sun-Seaboard, Smith 16 (57.31-ac)	7500	3631
Tide Water Associated, Hughey 37 (200-ac)	4000	3516
LONGVIEW AREA—		
Amerada, Bumpas 17 (98.3-ac)	9300	3585
A. P. & Louise Carr, Richey 3 (6.07-ac)	8000	3664
Richey 4 (6.07-ac)	8000	3665
Gulf, Neely 11 (49.44-ac)	7500	3513
Humble, Edwards 12 (73.3-ac)	4500	3683
Johnson 24 (98.9-ac)	7000	3678
Jackson-Wise & Snedden, Corbin 9 (41.7-ac)	8800	3648
Magnolia, Hampton 30 (153.33-ac)	6000	3651
Margay Oil Corp., Corbin 11 (55-ac)	10,000	3555
Pewitt et al, Porter 8 (66-ac)	750	3731
Shano Oil Co., Dobey 12 (43-ac)	2500	3771
Dobey 13 (43-ac)	2000	3735
Shell, Bassham 9 (54-ac)	10,200	3658
Bassham 10 (54-ac)	10,000	3703
Sinclair Prairie, Isley 17 (100.12-ac)	8500	3705
Stanolind-Tide Water, Akin 16 (80-ac)	9600	3602
Sun, Tooke 10-A (49.4-ac)	8800	3618
Superior, Ingram 27 (163.84-ac)	10,300	3603
CASS COUNTY (Rodessa)—		
Chamblee et al, White Walker Lbr. Co. 1, J. J. Potter sur	*	6203
MARION COUNTY (Jefferson-Rodessa)—		
Dunn & Fisher, Neilon 1, Gentry sur	475	6090
Heyser, Heard & Clardy, Brantley 1, R. Bennington sur	470	6086
Phillips, Benefield 1, Jas. Hanks sur	456	6125
ANDERSON COUNTY (Long Lake)—		
Hunt Oil Co., Brantley 1 (10-ac)	¶65	5332
FRANKLIN COUNTY (Talco)—		
Humble, Dawson 10 (80.45-ac)	159	4312
TITUS COUNTY (Talco)—		
Byrd et al, Wilson 1	375	4269
HENDERSON COUNTY—		
S. B. Howard-Frank Buttram et al, Self 1	*	5007

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHWEST TEXAS

San Patricio County adding another field.

* * *

Shallow Laredo area has interesting developments.

* * *

Willacy County test projected to 12,000 feet.

Corpus Christi.—Northeast San Patricio County was adding another new producing area late in the week with Humble Oil & Refining Company's Smith & Tolbert 1 coring oil and gas sand in the Heterostegina zone. The sand was topped at 4804 feet and the well still was in sand at 4817 feet. A drill-stem test at 4804-17 feet recovered 550 pounds dry gas pressure in 8 minutes. A second test was run at 4814-17 feet.

The potential field opener is 2332 feet from the south line and 1399 feet from the west line of combined Lots 1 and 2, Section 37, and in the Fourth Addition of the Taft Farm Lots Subdivision. While it is 9000 feet due east of the Plymotuh field, it is believed that the areas will not be connected. The Greta or Heterostegina sand shows salt water in the majority of wells in the Plymouth area.

Humble Oil & Refining Company is the principal leaseholder in the area, although Shell Petroleum Corporation, Sun Oil Company, Darby Petroleum Corporation, Saltmount Oil Corporation and Atlantic Refining Company have acreage nearby.

Turkey Creek field of Nueces County was receiving more extensions in its several sands. Conroe Drilling Company's Rand Morgan 1, Section 413, 4250 feet southwest of Morgan's Fee 1, is drilling below 6210 feet. An electric formation test indicated sand at 5620-30 feet and sidewall samples recovered a saturated section. The Morgan fee well opened production in this sand recently and extended the field. Heep Oil Corporation's McKenzie 1, 2750 feet northeast of production, flowed 240 barrels of oil in 18 hours through 3/16-inch choke under pressures of 900 pounds on tubing and 1000 pounds on casing. Production extended the regular sand, completion having been effected through perforations 5818-21 feet. Rutherford Oil Corporation's McKenzie 1, which extended the field about 3000 feet to the southeast, flowed 8 barrels of oil per hour through 11/64-inch choke under pressures of 950 pounds on tubing and 1000 pounds on casing, perforations having been made 5806½-11½ feet.

First submerged producer for South Texas Coast was assured with Sinclair Prairie Oil Company's State 1 in

Regarding 16-Inch Casing Record

The following has been received from U. C. Murcell of U. C. Murcell, Inc., of Los Angeles, with reference to a recent story giving details of setting 4,225 feet of 16-inch casing in a well in South Texas:

"My attention has been called to a featured article published in The OIL WEEKLY of March 14, 1938, in which you call attention to the setting of a world's record for the longest string of 16-inch casing.

"I believe that the statements set forth in this article are not exactly correct as our firm has welded and set much longer and heavier strings than claimed in this article. With reference to the longest string of 16-inch which we have set wish to advise that the following strings are all over the depth which is claimed for a world's record. For the Tide Water Associated Oil Company in the Ventura field, California, we set, in V. L. & W. 27, 5087 feet of 16-inch 77.75-pound slip joint welded casing.

In Lloyd 132, same field, we set 4845 feet of 16-inch casing
In Lloyd 133, same field, we set 4942 feet of 16-inch casing
In Hartman 14, same field, we set 4425 feet of 16-inch casing
In Lloyd 134, same field, we set 4275 feet of 16-inch casing

"We have also welded and set in the Ventura field, 6025 feet of 13⅜-inch 61-pound Grade D slip joint seamless casing in McGonigle No. 12. We have set other long strings in other fields for other companies.

"Our best record for setting long strings of 16-inch is 4900 feet in 11 hours and 20 minutes. We have set much larger strings such as 2000 feet of 22-inch in the Lost Hills field in California."

the Flour Bluff field. Nueces County, being completed at 6666 feet.

Smith Drilling Company was reported to be preparing to abandon French 1, 3000 feet southeast of the discovery well of the East White Point field, San Patricio County. Bottomed at 5716 feet, it showed salt water in the regular 5600-foot sand.

With three wells on production from the 3200-foot sand, Alfred field, Jim Wells County, comes in for an immediate development. Four rigs are active and more than a dozen locations have been staked. Smith & Storey, Inc.'s Adams 1, 1100 feet northeast of the discovery, gauged 351.4 barrels of pipe line oil per day through ¼-inch choke after casing was perforated at 3248-54 feet. Rowan & Hope, Inc.'s Adams 2, just southwest of the discovery, flowed 320 barrels per day through ¼-inch choke, its completion being through perforation at 3212-18 feet.

Southern Minerals Corporation has acquired considerable acreage on the present prospect south of Alice in Jim Wells County and has made location 1225 feet north of H. H. Howell's Tolbert 1 for Tolbert 2. The Tolbert and Goldapp tests, both drilled by Howell et al, showed oil and gas between 3300 and 3650 feet, but could not be successfully completed. Tom Graham has commenced Charles Martena 1 about ½-mile east of the Tolbert test. Two miles east of the Tolbert well, H. H. Howell et al's Lindsay & Reed 1 is drilling around 3700 feet after oil and gas shows at several levels below 3090 feet.

Magnolia Petroleum Company's second well in the East Premont field, Jim Wells County, is flowing several barrels of oil per hour through ⅜-inch choke and showing working pressure of 1700 pounds on tubing. It is bottomed at 6593 feet with casing landed at 6575½ feet.

Crown Central Petroleum Company has taken over J. W. Foust 1, discovery well of the Cordella field of Jackson County. The well, in the Peter White Survey No. 17, was carried to 5165 feet, plugged back and perforated at 2655-60 feet. It flowed 136 barrels in 24 hours, first 8½ hours being through 3/16-inch choke and the remainder of the time through a 5/32-inch choke. Pressures were 250 pounds on tubing and 350 pounds on casing.

New fields, extensions in Laredo area

Laredo.—Mirando District's shallow play had a number of hot spots as the week closed. Several tests appear to be opening new producing areas, while a couple more are providing key extensions.

V. G. Schimmel's E. R. Hagist 5, Block 11, Section 265, 1½ miles west of the Seven Sisters field, Duval County, was making a production test at 2196 feet in the Government Wells sand. The test had shells at 2166 feet, sandy shale and shells to 2190 feet and oil sand to the total depth. Casing was set at 2176 feet. The well has an elevation of 471 feet, derrick floor. Its completion will pave the way to further development of production along this trend.

In the northwestern corner of the county, G. Stratton et al's W. F. Applerbach 1, was testing oil sand at 1082-90 feet in the Mirando zone. It is in an area where several wells were drilled, all showing oil and gas about this level. Casing was landed atop the sand. The prospective field opener is in the northwestern portion of Section 342.

Across the Webb County line, another shallow Mirando sand test is attempting completion in an effort to open a new pool. Loma Novia Oil Company took over W. S. Hill et al's Mabel Adami 1, SE SE Section 345, which had been temporarily abandoned at 1205 feet. Casing was set 1021 feet and perforations will be made in sand at 1012-17 feet, which carried oil and gas showing.

Mountain Townsite Company's Fee 5, in the Oilton townsite, Webb County, was attempting completion through perforations in the Rosenberg sand, which had been logged at 2424-39 feet. The well showed considerable gas and sprayed some oil on first attempt and is being reworked. Several wells have been drilled in the area to this horizon, but none have been successfully completed as oil producers.

Randon Oil Company's H. Swift 1, Block 6, Section 746, 5 miles west of Oilton, cored a sand showing oil at 1000-10 feet, but drill-stem test failed to net production, hence the test is drilling ahead.

An east extension to the 5500-foot Yegua production in the North Sweden field of Duval County, was provided through the completion of Hiawatha Oil & Gas Company's Lillian Parr 9, which flowed 112 barrels per day through ⅛-inch choke under pressures of 550 pounds on tubing and 850 pounds on casing. The test is bottomed at 5518 feet with perforations at 5510-15 feet.

Willacy County test will drill to 12,000 feet

Mission.—Magnolia Petroleum Company again was running 9⅝-inch casing in F. Armendiaz 1, deep test south of Raymondville in Willacy County. The well, bottomed at 9641 feet, will be carried to at least 12,000 feet.

In the same county, but northwest of Raymondville, Sal Vieja Oil Corporation's Garcia 2 was progressing below 8010 feet. Drill-stem test at 7841-59 feet developed 45 feet of drilling mud in 20 minutes. Another test at 7771-7806 feet recovered 800 feet of salt water in 15 minutes.

Gulf States Oil Company's Cardenas 1, two miles northwest of the Mestinas field, Hidalgo County, was coring for the 7400-foot zone.

Mirando hearing set for April 11

A hearing on the new East Mirando Valley field in Zapata County has been scheduled for April 11, at Austin, by the Texas Railroad Commission. The hearing will determine proper operating rules for wells to be drilled around the Buffalo Oil Company's No. 1 Lopez, located in the Northeast corner of Block 1, Survey No. 253, Zapata County, Texas.

New Balcones pool opened in Guadalupe County

San Antonio.—One shallow pool was opened and a second appeared probable along the Balcones Fault zone last week. At the same time, efforts were being made to establish Glen Rose production east of the Chittim field in Maverick County.

H. G. Spiller's William A. Wright 1, in the Samuel Highsmith Survey, ½-mile west of the Dunlap field in Guadalupe County, pumped 69.25 barrels of 39.4 gravity crude on a 24-hour potential test. The well apparently opens a new pool on a fault parallel to the one upon which the Dunlap area has production. The well topped Austin Chalk at 2063 feet, Buda limestone at 2265 feet and is bottomed at 2290 feet. It was acidized with 1500 gallons. Elevation of the discovery is 420 feet, derrick floor.

Medina County, center of a revived drilling program by independent operators, scored a probable new pool when Ewing Oil Company's E. G. Riff 1 cored solid serpentine from 547-614

SOUTH TEXAS Completions

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
BASTROP COUNTY—		
Mart & Beavans, Inc., J. E. Harris 1, John Macmillian sur	*	2644
Western Gulf Pet. Co., E. & B. Pitkin 1, Martin Wells sur	*	2525
BEXAR COUNTY—		
Fair, Goode 1, Pickens survey (Medina Farms)	4	1227
CALDWELL COUNTY—		
Lanning & Coffield, Withers 4 (Ne Luling)	60	2226
Mee & McNeil, Cosey 5 (Luling)	112	2175
Murchison-Closuit-Reed, Jennings 7 (Luling)	350	2100
Ogden,Clinginsmith 1 (West Dale)	*	2598
Petkas & Johnson, Nugent 1 (Dunlap)	20	2279
Philtop, Dorn 6 (Luling)	83	2107
GUADALUPE COUNTY—		
Blackmer, Neighbors 1 (Darst Creek)	60	2650
Kallison, Ranft 1, J. H. Burnham sur	*	3140
Spiller, Wright 1, Harriett Cottle sur	69	2290
United North & South Dev. Co., Dix 7 (Darst Creek)	150	2497
MILAM COUNTY—		
Coffield, Dymke 2 (Minerva-Rockdale)	25	1541
MILAM COUNTY—		
Jones, Coffield 2 (Minerva-Rockdale)	5	574

GULF COAST DISTRICT

BEE COUNTY—		
Union Prod. Co., Ray 55, Geo. A. Kerr survey	*	3879
BROOKS COUNTY—		
Young, Singer 2 (Alta Verde)	*	1050
JACKSON COUNTY—		
Adams, Foust 1, Peter White survey	177	5165
JIM WELLS COUNTY—		
Rowan & Hope, Adams 2 (Alfred)	160	3252
Smith & Story, Adams 1, S. Adams survey (Alfred)	351	3372
LIVE OAK COUNTY—		
Jess I. Newton & Wilkerson, West 1, Airy Pieratt sur	*	2294
NUECES COUNTY—		
Andrade & Renwar, Fred Frank 9 (Saxet)	133	6921
Barnsdall, Humphrey 6 (Saxet)	500	4873
Culton, Baldwin 1 (Saxet Heights)	35	5195
Graham, Frank & Ida Harmon 6 (Saxet)	205	6948
Heep, McKinzie 1 (Turkey Creek)	350	5821
Hilburn, Mat & Pat Cody 4 (Saxet)	100	4171
Phillips, Clark 1 (Turkey Creek)	350	5831
Richardson Pet. Co., Baldwin 2, Russell Farm Lots	*	7466
Rutherford, McKinzie 1, P. Hinojosa survey	475	5414
Seaboard of Delaware, Luby 16 (Luby)	500	5074
Southern, King 6 (Bentonville-King)	175	4023
Southern, Mastin 2 (Saxet)	¶20	6736

feet and was still in that formation. It had an oil show at 528-42 feet just above the serpentine and at several points in that formation. The showings on the ditch were sufficiently encouraging to cause operators to announce plans for a production test. It is in Section 32, two miles south of Dunlay and 1000 feet north of a core hole drilled by Sun Oil Company in which serpentine was encountered.

M. Aldridge's Kroschewsky 1, S. Parrass survey, three miles northwest of Taylor in Williamson County, is testing at 1035 feet in the Dobie. Casing was landed at 969 feet. The well is said to have a light showing of oil at this level.

Wellington Oil Company of Delaware's Chittim Ranch 1, Section 129, about 2910 feet east of the Chittim field production in Maverick County, was testing just above 5700 feet. The well previously made a producer in the Edwards limestone at 3287 feet, but failed to hold up its production, hence the deepening.

Austin, Texas.—The Board for Leasing of University Lands last week auctioned several tracts in Crane, Crockett, Andrews and Ward Counties. Bidders paid approximately $495,000 in bonuses for the tracts sold.

Company, Well and Location	Init. Prod. Bbls.	Depth
REFUGIO COUNTY—		
Barnsdall & Transwestern, Fagan 1, Nicholas Fagan sur	*	6710
Houston, Pratt-Hewitt-Rooke 38 (Refugio)	650	6226
Nordan, O'Connor 18-B (Tomoconnor)	1000	5930
Quintana, Bauer 7 (Greta-Tomoconnor)	2000	5910
Quintana, O'Connor C-25 (Refugio)	2650	5925
SAN PATRICIO COUNTY—		
Humble, Mayo 35 (Taft)	¶20	3764
VICTORIA COUNTY—		
Gulf, Bonner 2 (Heyser)	450	5748
Portilla Drlg. Co., Welder D-1, SA & MG survey	*	6520
Superior & Gilespie, Carroll 1, Johnson survey	*	5508
MIRANDO DISTRICT		
DUVAL COUNTY—		
Argo, Bolte 1 (N. Sweden)	550	5350
Brinkoiter, Rodriguez 9-A (Seven Sisters)	206	2450
Conroe, Trevino 1, J. Poitevent sur	*	4750
Cox & Hamon & Gorman-Yoakum, Cuellar Bros. 1 (Hoffman)	129	2856
Cox & Hamon, Greene 10 (Hoffman)	125	2721
Government Wells, Lundell 19 (Lundell)	145	1514
Hiawatha, Parr 9 (N. Sweden)	450	5518
Magnolia, DCRC 26 (Piedre Lumbre)	75	2050
Navarro, West 3 (N. Sweden)	480	5331
Pan-American, Welder-Heirs 9-A (Seven Sisters)	150	1719
Pet. Prod., Inc., Worden & Drought C-1, CCSD & RGNG survey	*	1506
Standard of Kansas, Walstad 7 (N. Sweden)	275	5381
McMULLEN COUNTY—		
Argo, Edrington 1-C, (Rhode)	¶5	3534
Ezzell, Fee C-3 (Ezzell)	157	1477
Fee C-4 (Ezzell)	¶5-10	1471
STARR COUNTY—		
Clopton & Reed, Roos & Bennett 5 (Santo Domingo)	¶22	2498
Wheeler & Ware, Pena 1 (Samfordyce)	350	3020
WEBB COUNTY—		
Brooks, Uzzell 3 (Killam-Oilton)	120	2009
Campbell & Killam, Thompson 4 (Killam-Oilton)	10	1994
Cox & Hamon, Long 3 (Killam-Oilton)	¶10	1987
Daubert & Lipscomb, Garcia A-4 (Killam-Oilton)	250	2010
Garcia 5-A (Killam-Oilton)	140	2030
Killam, Garcia 9 (Killam)	85	1991
Oil Well Drlg. Co., Garcia 1 (Oilton)	175	2007
ZAPATA COUNTY—		
Oil Country Pipe & Supply Co., Benavides 2 (Andrews)	*	1702

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS GULF COAST

Oil sand reported in Ogburn prospect wildcat.

* * *

Clear Lake area wildcat prepares to test.

* * *

McCrosky area wildcat recovers salt water on test.

Houston.—Interest in the Texas Gulf Coast last week centered around two wildcats in Harris County. One will probably open a new oil field. The other created excitement when a thin section of sandy shale with an odor of oil was logged.

The most outstanding well in the Texas coastal country is West Production Company's Sowden 1, Clear Lake area, J. Lindsey Survey. April 1, the operators were running casing to 6018 feet for a production test. According to reliable reports the wildcat logged top of the broken gas sand at 5740 feet and cored 112 feet of this formation, sand and shaley sand showing gas to 5852 feet. The Frio encountered at 5852 feet was oil sand. A good sand section, 43 feet, showing oil, was cored from 5852 to 5895 feet. After passing out of the sand showing oil a shale formation was logged at 5895 to 5912 feet, and then salt water sand was encountered around 5921 feet, which will probably be the water level for the field. All sands below 5921 feet showed salt water. Operators set 7⅝-inch casing at the bottom to perforate.

According to one member of the West Production Company, "We went into oil sand at 5640 feet, are bottomed in sand at 6005 feet and set 7⅝-inch casing with 528 sacks of cement at 6005 feet." When queried as to whether it was all sand showing oil, he stated that information was not being given out. It was not stated that salt water sand was cored nor what type of formation was logged between 5640 and 6005 feet.

This wildcat started several rumors and a number of reports were circulated. Some state that the well has logged 100, 200, 300 and even 365 feet of "solid oil sand." Others state that only 53 feet of sand showing oil were cored, and that the rest was broken formation showing gas, distillate, and salt water.

Big Fee Holdings

West Production Company's Sowden 1 is on a 20 acre tract farmed out by Stanolind Oil & Gas Company, which has a 300-acre tract in the area. J. M. West, West Production Company, has between 35,000 and 50,000 fee acres in the area. In this area is his ranch and a hunting reserve. On the west side of the ranch is Friendswood field, which will probably broaden out onto the ranch. The West ranch has been worked with geophysics in the past and reports are that another field is on the property.

Leasing has been brisk in the area of the indicated discovery well. E. E. Fogelson, Houston independent operator, purchased the surface rights and a one-half interest in minerals on an 83-acre tract. The consideration was reported at $72,000 cash and $100,000 in oil payments.

Thin Sand Reported

The other important wildcat in Harris County, is O. W. Killman's Sweeney Estate 1, on the Ogburn prospect, G. Williams Survey, down to 6658 feet and fishing. The well logged a thin streak of sand with an odor of oil from 6535 to 6545 feet. In coring from 6545 to 6560 feet the operators failed to recover any of the cores but it was believed that it was sandy shale. It is believed that the well has not cored enough sand showing oil to make a well.

Two new locations were announced in Eureka field, Harris County. Alamo Drilling Company and J. C. Means made location for L. Lackner 2 in the H. Reinerman Survey. Houston Oil Company made location for Helberg Lackner 2, approximately 4450 feet from the east line and 162 feet from the north line of J. Reinerman Survey.

I. E. Harwell's State 1 in Gulf of Mexico, off the shore of Jefferson County, was abandoned last week at 5821 feet after the drill pipe was stuck. This wildcat created considerable excitement some time ago when reports that oil sands were cored were given before the senate investigating committee at Austin when it was investigating the land department. Gas sands were reported at 2640 to 2700 feet and oil sands were logged at 2796 to 2812 feet.

At Labelle in Jefferson County, Sun Oil Company's Broussard Hebert 3, B. Blackmon Survey, was coring in sand last week at 8622 feet, after cutting a core from 8612 to 8618 feet which showed an odor of gas. The well is below the gas and distillate sands found in the other wells.

Southeast of the discovery well at Fairbanks, Harris County, H. E. Williams abandoned Vega 1, G. Williams Survey, when the well was at completion stage. A leak occurred and it attempted to blow out and crater. Operators are moving the derrick over to drill another 6835-foot hole.

On the Pearland prospect in Brazoria County, Sam Dunnam's Settegast 1, Thomas J. Green Survey, was abandoned at 6543 feet in shale after logging salt

water sands in the Frio. This is the second well abandoned on Pearland prospect.

Two Deep Ones Completed

At Old Ocean, Brazoria County, Harrison & Abercrombie completed two new 10,000-foot oil wells last week. Osburn 1, C. Breen Survey, made 200 barrels daily of 54.5 gravity oil through various size chokes with a tubing pressure of 1300 pounds and a casing pressure of 875 pounds from 10,413 feet. Two and a half-inch tubing was hung at 10,347 feet. Bernard 5, C. Breen Survey, made 230 barrels daily through various size chokes at 10,401 feet. Tubing pressure was 1375 pounds; casing was sealed.

North of Van Vleck and in the McCrosky area, Matagorda County, Superior Drilling Company made a drill stem test on Kruger 1, C. Warren Survey, last week and recovered salt water. Casing was perforated with 12 shots from 6692 to 6695 feet. With a 1000-foot water cushion in the hole the well showed a slight blow of gas and 4500 feet of salt water with a slight show of oil. The test was made through quarter-inch chokes.

At South Bay City, Matagorda County, Pan American Production Company is preparing to complete Richers 1, I. & G. N. No. 3. Casing was perforated with 40 shots from 9310 to 9320 feet and Christmas Tree is being installed.

At Orange, Orange County, Gulf Oil Corporation missed the flank Frio sand in Duhon 1, Wm. Dyson Survey. At the end of the week the well was down to 6260 feet in shale after coring salt water sands from 6068 to 6129 feet. A sand with a slight show of oil was encountered at 5954 to 5956 feet.

Ryan & Thompson are testing a new sand on the flank of Orange. McGill 1, Wm. Dyson Survey, logged broken formation from 5689 to 5715 feet showing oil. The regular producing sand for this side of the field is around 5918 feet. Shell Petroleum Corporation's Loeffler 1, on the flank of Orange, was being completed at 5962 feet. Top of the broken section was encountered at 5945 feet.

Stanolind Oil & Gas Company will test to 10,000 feet on the Conroe trend in Waller County with Freeman 1, in H. & T. C. Section 99, which is in the old Katy field.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
DICKINSON—		
Mid States Oil Co., Piazza 2	60	8153
EUREKA—		
Jack Frazier, Vollmer 1	616	7730
FAIRBANKS—		
H. E. Williams, Vega 1	*	6835
FRIENDSWOOD—		
Humble, Gray 4	672	6040
Gray 6	585	6041
Godwin 1	574	6042
Moore 1	552	6043
Settegast 3	624	6041
Whitcomb 2	579	6042
HARDIN—		
Gulf, Tullos 1	480	7628
HASTINGS—		
Stanolind, Brown 10	506	6080
Ford 15-A	543	6078
Matsushite 6	587	6080
Ramley 5	567	6080
HIGH ISLAND—		
Stanolind, Cade 64	214	5058
LOCHRIDGE—		
McCurdy and Johnson, State 1-A	320	6444
NOME—		
Shell, Carpenter 8	495	6043
OLD OCEAN—		
Harrison & Abercrombie, Bernard 5	230	10,401
Osburn 1	200	10,413
PALACIOS—		
Atlantic, Foley A-3	73	8840
SEGNO—		
Gulf, Wing 6	510	5190
SILSBEE—		
Humble, Kinkendall 1	*	7050
TOMBALL—		
Humble, Holderrieth 3	600	5548
Kobs B-3	¶3	5601
WEST BEAUMONT—		
Stanolind, Keith Dowlen 4	75	5882
WEST COLUMBIA—		
Texas Co., Goldman 2	554	5429
BRAZORIA COUNTY—		
Sam Dunnam, Settegast 1, Pearland area, T. J. Green sur	*	6543
HARRIS COUNTY—		
W. S. Howell, Root 1, Battleground area, A. McCormick sur	*	2800

*Failures; †Junked; ¶Million cu. ft. gas.

Seek 20-acre well spacing at Fairbanks

Austin.—Twenty-acre spacing for wells in the Fairbanks field, Harris County, was advocated by Amerada Petroleum Corporation and Stanolind Oil and Gas Company at a hearing before the Texas Railroad Commission last week. This plan was opposed by Sinclair Prairie Oil and Gas Company and several independent operators who wanted a 10-acre rule.

Wells in the field are now producing from a sand found at approximately 6800 feet which is located in the upper part of the Yegua formation. J. W. Kisling, Jr., Amerada geologist, estimated that there are 30 feet of effective sand between the gas/oil contact at —6710 feet and the oil/water contact at —6740 feet. He said that the field had a combination hydrostatic and gas drive.

As there are 1000 feet of consolidated sands from the surface downward, Kisling recommended 1200 feet of surface casing cemented to the surface. The Amerada also suggested that the commission provide that the oil string be set at the gas/oil contact and cemented with 300 sacks of cement.

Proration would be on acreage and potential with 50 percent allocated on each factor. The program advanced by Amerada was opposed by Sinclair Prairie, protesting that operators would be tempted to drill their wells too deep in an effort to obtain high potentials and might thus bring water into the field prematurely.

Turkey Creek gets 15-acre spacing order

Fifteen-acre spacing for wells in the Turkey Creek field, Nueces County, was provided in an order issued by the Texas Railroad Commission last week. This allowed wells to be drilled 405 feet from lease lines and 809 feet apart. The proration plan calls for allowables based on acreage and per well with 50 percent allocated on each factor. The rules provide for 15-acre proration units with a maximum of 25 acres and a minimum of five acres assigned to one well.

Operators must use 1350 feet of surface casing cemented to the surface and an oil string set no higher than the top of the producing horizon and cemented to a point within 3500 feet of the surface.

Because of the gas hazards, 10-pound mud with a viscosity of 35 seconds must be used when drilling below 200 feet.

An adequate proration system for gas wells was included with 2/3 of the allowable distributed on acreage and 1/3 on potential. One hundred and sixty acre units are provided for gas proration.

Texas permits total but 120 for week

The Texas Railroad Commission last week approved permits for drilling 120 new wells in Texas, 219 less than were approved the week before.

One permit was granted in the East Texas field in Smith County, while no new locations were approved in the remainder of the East Central Texas area.

West Texas operators reported 23 locations, while 14 were reported from West Central Texas.

Operators in the Gulf Coast area were granted 31 permits, including 10 in Harris County. There were 27 listed from Southwest Texas, including 11 in Jim Wells County.

Permits for drilling 19 new wells were approved in the Panhandle District. Five locations were reported by North Texas operators.

Texas awards leases on two riverbeds

The Texas State Board for Mineral Development has awarded the leases on four tracts of riverbed lands. The tracts are located in the Pecos and Big Wichita rivers.

The following awards were made:

Marvin Hudson, Wichita Falls, Tract 2, Big Wichita river. The lease provides for Hudson to operate at the tract, paying the tract one-half of the value of all oil produced above operating expenses, and reserving to the state all oil or gas below 2000 feet.

Tract 1, Pecos, $2500 cash, $5 an acre rental, and $10,000 out of 1/16 of ⅞ was awarded to Munday Oil Company.

George K. Taggart, Fort Worth; Tract 2, Pecos, $2610 cash, $5 an acre rental, 15 percent royalty until wells are paid for, and thereafter, 50 percent.

M. B. Rudman and L. R. Eddy: Tract 1, Big Wichita, $2500 cash and ¼ royalty (⅛ plus ⅛ overriding.)

HENRY J. HAWLEY, manager of the southern district for The Standard Oil Company of Texas, has been transferred from Dallas headquarters to the general office of Standard Oil Company of California, parent organization, at San Francisco. Reports indicate that he may be placed in charge of the exploration department of the parent company. Hawley has been located at Dallas since February, 1934, and became manager of the Southern District in August, 1936. A. J. (Casey) Cunningham, assistant manager and head of the land department, will have charge of the Dallas office, pending the selection of Hawley's successor.

SOUTH LOUISIANA

World's second deepest drilling well at South Elton.

* * *

New shallow sand is discovered in Sorrento field.

* * *

Two wells extend Villa Platte south and southwest.

Lake Charles.—The second deepest drilling well in the world is Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Calcasieu National Bank 3-B at South Elton, Section 27-7s-3w, Jefferson Davis Parish. Last week the well was down to 13,000 feet in shale and was running an electrical logging device. This well is the second well this year to break the old deep record of 12,786 feet. The first well was the California well which is now drilling at 15,000 feet. Calcasieu National Bank 3-B topped the Cockfield at 12,200 feet and is slated to go to Sparta formation.

Amerada Petroleum Corporation and Stanolind Oil & Gas Company's deep well is the farthest down dip well in South Louisiana to penetrate the Cockfield formation. Several sands below the top of the Cockfield were cored.

Calcasieu National Bank 3-B was spudded November 27, 1937, and after drilling to 9100 feet the well attempted to blow out. Over 8900 sacks of cement were pumped into the well to kill it before resuming. Size of the hole today is 8¼-inch. Its condition is such as to allow it to be drilled to 14,000 feet or deeper.

Gets New Sand

A new producing sand was discovered at Sorrento field, Ascension Parish, April 1, when Pan American Production Company completed United Lands 9, Section 15-10s-4e, flowing 16 barrels of 23.5 gravity oil per hour through a 3/16-inch choke at 1333 feet. Tubing pressure was 300 pounds and casing pressure was 425 pounds. United Lands 9 was drilled to 1333 feet after logging sand showing oil from 1312 to 1333 feet. Seven-inch casing was set at 1315 feet and was perforated at the new sand.

Villa Platte was extended south and southwest last week when Continental Oil Company completed two wells. Hirsch 1, Section 44-3s-2e, made 340 barrels in 17 hours through a 3/16-inch choke. At the end of the week it was flowing 56 barrels daily through a 1/16-inch choke. Tubing pressure was 1500 pounds and casing pressure was 1575 pounds. McDaniels 1 was completed at 9040 feet. The 40.3 gravity oil was coming from Sparta sands. The same operator's McDaniels 1, southwest of production made 438 barrels of 39.4 gravity oil per day through a 3/16-inch choke with a tubing pressure of 1400 pounds and a casing pressure of 1500 pounds at 9030 feet. Continental Oil Company was preparing to complete Ed. Tate 1, Section 44-3s-2e, Villa Platte, last week. The hole is bottomed at 9060 feet in sand showing oil. Top of the sand was encountered around 8908 feet. Seven-inch casing was set at 8982 feet.

Second L. S. U. Location

The second location Baton Rouge, University, or L. S. U. field, East Baton Rouge Parish, was announced by William Helis. His L. S. U. 1, is 1000 feet northwest along the east line from the most easterly southeast corner of the L. S. U. 2175.9-acre tract and 400 feet southwest at right angles in Section 65-7s-1e. It is on the Louisiana State University campus.

Louisiana Crusader Oil Company's Duplantier 1, the discovery well south of Baton Rouge is making 488 barrels of 33 gravity pipe line oil daily through a 3/16-inch choke with a tubing pressure of 1000 pounds. The gas/oil ratio is 600 to 1.

Humble Oil & Refining Company made a drill stem test on Wilbert 6, Bayou Blue field, Section 66-9s-11e, Iberville Parish, in a new sand last week and recovered salt water and a trace of oil. The drill stem test was made in 18 minutes from 6531 to 6549 feet through quarter-inch chokes. The hole was cored to 6567 feet and five feet of salt water sand were cored. Three feet of sand failed to show anything. The well will be cored deeper.

Gulf Oil Corporation made a new wildcat location in Plaquemines Parish. Grand Prairie Levee District 1-A is on the Bird Island prospect and is 660 feet north and 660 feet east of the southwest corner of Section 6-20s-19e.

At Lake Hermitage, Plaquemines Parish, Gulf Oil Corporation made another test on Lafourche Levee Basin District 7 in a new sand and recovered salt water. Casing was perforated with 20 shots from 8520 to 8530 feet and a drill stem test showed 7200 feet of salt water, no oil or gas. Perforations have been squeezed for another test.

The second well at Quarantine Bay, Plaquemines Parish, is nearing the producing sand. Gulf Oil Corporation was coring for the sand in QQ 4 at 8100 feet. Sand with an odor of oil was cored from 7853 to 7880 feet.

Misses Sand

North of the discovery well at Horseshoe Bayou, St. Mary Parish, The Texas Company was coring in sand and sandy shale in St. Mary Land Company 1, Section 37-17s-9e, last week and had not encountered the sand from which the discovery well is producing. The well was down to 10,932 feet in sand with an odor of oil. The discovery well was completed at 10,850 feet.

At Abbeville, Vermilion Parish, Continental Oil Company abandoned Faulk 1, Section 66-12s-3e, at 9000 feet after failing to pick up the Brookshire sand. The well is approximately 200 feet lower than the company's Brookshire 1.

Humble Oil & Refining Company is preparing to make a test on Miami Corporation B-1, Little Cheniere area, Section 7-14s-6w. The hole was drilled to 9270 feet and plugged back to 8990 feet, where it was shut down waiting on cement. Operators will perforate casing for a test. No information has been given out on the wildcat as to shows encountered.

New Big Lake Sand

A new sand has evidently been discovered at Big Lake field, Cameron Parish. Union Sulphur Company made a test on J. O. Hebert 2, Section 18-12s-8w, last week and it flowed an estimated 500 barrels daily before going to salt water. The crew has squeezed cement through perforations to shut off the water. Hebert 2 was perforated with 20 shots from 6790 to 6795 feet and it came in flowing pipe line oil with a tubing pressure of 1000 pounds. It then started making 50 percent salt water. The well was killed and setting pulled.

In the Woodlawn area, Jefferson Davis Parish, Union Sulphur Company cored 10 feet of sand with an odor of oil between 8500 and 8520 feet in Calcasieu National Bank 2, Section 12-9s-6w. At the end of the week the test was down to 8550 feet in water sand.

SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ABBEVILLE—		
Continental, Faulk 1	*	9000
BLACK BAYOU—		
Shell, Watkins 40	132	6235
CHARENTON—		
Pan American, Robichaux 3	288	2654
EAST HACKBERRY—		
F. J. LeBlanc, Doiron Heirs 1	*	4003
GILLIS—		
Union Sulphur, McIver 2	¶1	7132
SULPHUR—		
Union Sulphur, Fee 850	*	5503
Fee 858	300	5121
VILLA PLATTE—		
Continental, Hirsch 1	480	9040
McDaniels 1	438	9030
WEST HACKBERRY—		
W. T. Burton, R. Vincent 5	26	3410
ST. TAMMANY PARISH—		
O. Phillips, Stevenson 1, w of Covington, 33-6s-10e	*	1500

*Failures; †Junked; ¶Million cu. ft. gas.

Shreveport. — Twenty-three drilling permits were authorized last week by the minerals division, Louisiana Conservation Commission of which only three were for North Louisiana, in the following parishes: Bienville, one; Bossier, one; and Lincoln (Lisbon, one. The twenty in south Louisiana were divided among the following parishes: Acadia, three, besides one amended permit; Ascension, one; Avoyelles, one; Cameron, three, and one renewal; Concordia, one; Evangeline, one; Iberville, one; Jeff Davis, one; LaFourche, one; Plaquemines, three; St. Martin, one; St. Mary, two; and Terrebonne, one.

NORTH LOUISIANA

Lisbon mile-extension well flows 20 barrels per hour.

* * *

Blanchard distillate flow has slugs of crude oil.

Shreveport. — Developments in the Lisbon field featured developments in North Louisiana last week. Producing limits were extended one mile southwest by a flowing well, completed without acidization, and which will require the drilling of six offsets. Furthermore, placing of a 40-acre space rule in effect, supplanting the previous 20-acre rule in effect since early in the development of the field, and raising of the allowable 1,000 barrels daily to 11,000 barrels for April, give indications that the spring will see the fastest pace this field has yet developed in drilling.

Unconfirmed reports have been heard of another pipe line out, which would give three to the field. Another has had right-of-way surveyed and a number of contracts signed but no pipe on this project has yet been laid.

The one-mile southwest extension well—not taking into consideration the three-mile southwest outpost in NE NE 16-20n-5w, completed several months ago as a 100-barrel well—completed last week was W. H. North and Associates' Patton 1, SW NW 11-20n-5w, completed on the fifth trip of swab, flowing 20 barrels per hour through 14/64-inch choke, with packer and tubing pressure 175 pounds. With elevation of 280.2 feet, this test topped 15 feet of saturation at 5326 feet.

A. O. Olson and associates' Sharp 1, C NW NE 10-18n-16w, Caddo Parish, Blanchard district, showed for 50 to 100 barrels of distillate with slubs of oil when tested last week in Travis Peak, a new horizon for that field. The well was shut in for further testing after flowing distillate and oil along with 2 to 2½ million cubic feet of gas. Total depth is 6061 feet. Seven-inch casing was perforated at 5994 to 6002 feet with 12 shots. With elevation of 265 feet, this test logged massive anhydrite at 4429 to 4688 feet and topped Travis Peak at estimated depth of 5836 feet.

Howard M. Jones of Shreveport has assembled a 10,000-acre block, on a 10-year commercial basis, around Section 1-10n-8e, Catahoula Parish, in an area where Continental Oil Company has been shooting recently. In Concordia Parish near the village of Monterey, Dale and Wilson of Vidalia, Louisiana, have assembled a 15,000-acre block for a proposed 6,000-foot test. The acreage is in township 5 north range 8 east. In Franklin Parish, Southern Star Petroleum Company (Jensen et al) is preparing to move 300 feet north of Grayson 2, SW NE 36-12n-6e, for a new test, present test having cut a fault. Total depth is 1755 feet.

Petroleum Heat & Power Company in the newly opened productive nose off the Dolet Hills part of the old Bull Bayou field, successfully put out a fire with steam and water at W. R. Williams 1, Section 13-12n-11w, that caught fire as preparations were being made to drill plugs and test in the Tokio. This company is adding to its holdings there having recently taken SW NW and E½ SE NE 30-12n-11w. In Madison Parish, Gulf Refining Company has a gravimeter unit working out of Tallulah. Ohio Oil Company has a seismograph unit working in township 23 north range 7 east near Bayou Bartholemew.

C. H. Murphy and associates of El Dorado, Arkansas, who several months ago took geophysical option on 20,000 acres around Section 40-3n-1e, Rapides Parish, are allowing the options to lapse.

Standard Oil Company of Louisiana is checking its block around C SW SW 13-23n-2w, Union Parish, where it has made location for Frost Lumber Company 1. Union Producing Company's geophysical unit in this parish is checking in township 23 north, range 3 east and Atlantic Refining Company's unit continues to work in township 22 north, range 1 west.

East of production at Cotton Valley, which received five new locations during the last week, Hunt Oil Company leased 120 acres in Section 16 and 21-21n-9w, and T. A. Glass leased NE SE 29-21n-9w.

Magnolia Petroleum Company last week was drilling at 8767 feet in black shale in Frank Sexton 1, C SW NE 32-23n-9w, deep test in the shallow Shongaloo field, Webster Parish. Unless further arrangements are made it will be abandoned at 8800 feet. The

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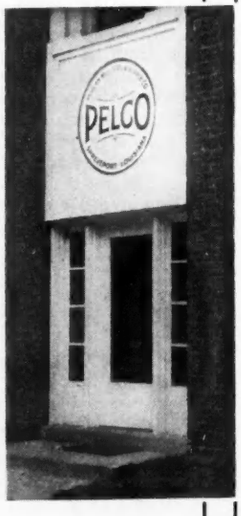

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SHREVEPORT LOUISIANA

PELCO

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe
Cotton Valley—Greggton
Houston

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAIBORNE PARISH (Lisbon)—		
Heath et al, Patton C-1, 1-20n-5w..	720	5370
North et al, Patton Est. 1, 11-20n-5w	480	5342
LINCOLN PARISH (Lisbon)—		
¶Magnolia, Pollock Hrs. 2, 6-20n-4w	375	5341
WEBSTER PARISH (Cotton Valley)—		
Magnolia, Crichton Hrs. 1, 33-21n-10w	1500	5776

*Failures; †Junked; ¶Million cu. ft. gas.

structure of the lower Marine in this test, topped at 7605 feet (elevation 225 feet) is questionable of producing as there is so little control. Between top of Travis Peak at 5700 feet and top of lower Marine the interval is about 175 feet less than at Cotton Valley but this may be partly due to normal thinning out of beds to the north. The Bodcaw producing level of the lower Marine at Cotton Valley was tight and dry in this test and although three gas strata were logged below the Bodcaw topped at 8032 feet, due to the depth and lack of demand for the outlet their commercial value might be negligible.

Another test that is out of the picture unless it is deepened farther is Hunter & Rowe's (formerly Furlong) E. M. Clarke 1, Section 10-20n-7e, Morehouse Parish, on the extreme southeast end of the "Schuler Trend." Already deepened beyond contract depth it was shut down last week at 7022 feet in tight shale and lime. It cored sandy lime and shale at 6868 to 6874 feet.

ARKANSAS FIELDS

Columbia County wildcat flows 22 barrels per hour

El Dorado, Ark.—Extension of the lower Marine (Jones sand) producing horizon in the Schuler field, Union County, successful re-completion of Kerr-Lynn Oil Company's wildcat test in Section 14-17-20, Columbia County, in Permian lime, and one successful well and an abandoned test at Buckner were the major developments in Arkansas last week.

The north Schuler extension well is Alice Sidney Oil Company's Powledge 1, SE SW SE 7-18-17, completed at 7729 feet, but in the Jones sand, flowing 120 barrels per hour through ½-inch tubing choke, making a net oil yield of 928 barrels in first 8 hours. With elevation of 257 feet this test logged Jones sand from 7577 to 7630 feet and topped the Permian (Reynolds) lime at 7688 feet. The well was perforated from 7570 to 7631 feet. This test on top of Jones sand was 63 feet lower than the highest well in the field and 16 feet lower than nearest producer, indicating that the dip to the north of this structure is steeper than to the southeast.

Columbia County Well Flowing

Kerr-Lynn Oil Company's Barnett 1, SE SW NE 14-17-20, Columbia County, after showing for a large well in Permian lime several weeks ago, later showed salt water, necessitating re-setting of 5-inch casing. Last week it was re-completed flowing 22 barrels per hour through drill stem with 1½-inch choke on top and ⅜-inch choke on bottom, after new perforations at 7646-49 feet. Thursday the well was killed to permit running of tubing and packer. Total depth is 7740 feet and 5½-inch casing was set at 7720 feet, 7-inch being set at 7051 feet.

With elevation of 321 feet, following are the markers on this test: anhydrite, 3147 to 3211 feet; top lower Marine, 5449; top Permian lime 7618 feet. Casing was perforated 7069 to 7540 feet with twelve shots and from 7646 to 7649 feet, with nine shots.

Analysis of the oil shows the following: Gravity, 36.6; pour point plus 20 F; sulphur, 1.01; color, green; recovery: gasoline, 30.0 per cent; end point, 375; 58.2 gravity, color 30; kerosene, 15 per cent; 500 end point; 43.3 gravity; 25 color; gas/oil, 27.5 percent; 720 end point, 32.0 gravity; color, straw; lube-distillate, 25 per cent; 880 end point, gravity 23.0; color, four.

Standard Oil Company of Louisiana's S. T. Crone 1, C NW SE 8-16-22 was swabbing Thursday, after flowing into pits throughout Wednesday night, apparently assuring the second Permian lime producer at Buckner. Total depth is 7272 feet, with 7-inch casing cemented at 7260 feet. With elevation of 271 feet this test logged saturated lime from 7264 to 7272 feet; topped Ozan at 2137 feet; red beds, at 2770 feet; Glen Rose, at 2835 feet; anhydrite at 3283 feet; lower Glen Rose, 3424 feet; top Travis Peak, 4288 feet.

Standard's Bodcaw-Barbara 1, C SE NE 18-16-22, Columbia County, southwest of the discovery and between it and a recently abandoned test farther southwest in Section 18-16-22, across the LaFayette County line, drilled to 7444 feet before being abandoned, and logged salt water in the Permian lime. With elevation of 253 feet, it had the following markers; top Midway, 800 feet; top Arkadelphia, 1345 feet; Nacatoch, 1630 feet; Saratoga chalk, 1807 feet; Marlbrook marl, 1900 feet; Annona chalk, 2040 feet; Ozan, 2099 feet; Tokio, 2508 feet; red beds, 2739 feet; Glen Rose, 2812 feet; anhydrite, 3282 feet; Travis Peak, 4268 feet; lower Travis Peak, 5339 feet; and Reynolds (Permian) lime, 7291 feet.

ARKANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MILLER COUNTY (Rodessa)—		
R. W. Newell, Thomas 1, 12-20-28..	26	6144
COLUMBIA COUNTY (Buckner)—		
Standard, Bodcaw-Barbara 1, 18-16-22	*	7444
UNION COUNTY (Schuler)—		
Marine, Justiss 3, 18-18-17.....	1512	7610
Lion, Miller 1, 18-18-17.....	1440	7710
Marine 2 17-18-17	1400	7650
Phillips, Rosen 2, 18-18-17	1200	7700
Alice Sidney Oil Co., Powledge 1, 7-18-17	2800	7729

*Failures; †Junked; ¶Million cu. ft. gas.

El Dorado, Ark.—Six permits to drill were authorized last week by the Arkansas Board of Conservation, as follows: Columbia County— L. A. Longino, Baker 1, 660 north and 226.5 west SEc NW NW 13-17-20; Union County (all in Schuler)—R. T. Adams, C. D. Justiss 1, 330 north and 101.25 west SEc Lot 2, SW 7-18-17; N. F. Wilson, B. F. Justiss 1, 110 north and 200 east SWc 2.57-acre tract NE SW 8-18-17; Lion Oil Refining Company, Edna Morgan B-6, 250 north and 400 east SWc NW SE 18-18-17; Marcus 1, 330 south and west NEc Lot 5 NW 18-18-17; Edna 1, 330 south and west NEc NW NE 18-18-17.

SOUTHEASTERN STATES

Two Mississippi tests quit

Jackson, Miss.—Two wildcat tests, one of them a deep operation in Hinds County, were abandoned last week. The Hinds County test junked at 7584 feet was Black River Oil Company's (William C. Durant) Federal Land Bank 1, loacted 300 feet south and 1620 feet west NEc 11-15n-5e, near Edwards, which was lost when operators were coming out of the hole several weeks ago with a core and drill stem parted, dropped and cork-screwed, leaving 5500 feet of 4-inch drill pipe and the core barrel in the hole. The test was abandoned in sandy shale. Elevation was 146 feet. Chalk was topped at 6961 feet.

Phillips Petroleum Company has temporarily abandoned J. J. Newman Lumber Company 1, SE SE SW 21-2n-10w, Perry County wildcat, at 8434 feet in shale with thin streaks of sand. Elevation is 210 feet. The derrick is left standing but rig was shipped to Arkansas. Rumors have been heard that this hole may later be taken to 10,000 feet, although on upper formations it checked only normal.

Cleve Love and associates are arranging to set 7-inch casing in S. F. Johnson 1, NE SE 29-6n-1w, wildcat test in Hinds County, near Clinton in what is identified as Tuscaloosa (Woodbine). Operators cored a sand, soft and porous with some black streaks, no water and no saturation but indications of gas from 3660 to 3675 feet; elevation is 343 feet. Midway chalk was identified at 3097 feet and top of Eutaw (Ozan) at 3617 feet.

Stake locations for two Alabama tests

Mobile, Ala.—Locations for two Alabama tests were staked last week. J. B. Greer and associates were moving in rig for a 3500-foot test to the Tuscaloosa (Woodbine) in Clarke County near Satilpa, location being Augustine 1, SE NW 9-7n-1e. Joe Modisett has drilling contract and spudding date is April 15. This test is on a block of about 6000 acres. This block adjoins one owned by Amerada Petroleum Corporation, in township 7 north, ranges 1 and 2 east.

In Barbour County near the Georgia line, H. A. Stebbinger and associates who recently blocked 15,000 acres for a proposed 6000-foot test, made location for Town of Lewis 1, Section 11-9n-25e.

MISSISSIPPI

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOLIVAR COUNTY—		
White & Jones, Ballou 1, 18-24n-7w..	*	1681
HINDS COUNTY (Wildcat)—		
Black River Oil Co., Federal Land Bank 1, 11-15n-5e.....	†	7584

*Failures; †Junked; ¶Million cu. ft. gas.

ROCKY MOUNTAIN FIELDS

Important Wyoming deep wildcats are at critical depths.

* * *

Deep test will seek oil in Allen Lake gas producing area.

Casper, Wyo.—Two Wyoming wildcats, drilling on large blocks, for important deep tests, again were at critical depths and drawing considerable attention. Proved field drilling which received a strong impetus of new work the past week settled down to busy routine activity this week.

Stanolind Oil & Gas Company's Johnson 1, CSE SE 3-33n-96w, Beaver Creek structure, 16 miles south of Riverton, in Fremont County, tested 5,000,000 cubic feet of gas daily on drill-stem test at 8,248-86 feet in the first sand in the Morrison, and is coring at 8,363 feet, feeling for the second sand in the Morrison. Major objective, the Sundance sand, is expected within the next 200 feet.

On Cole Creek, 13 miles northeast of Casper, Natrona County, General Petroleum Corporation's Government 1, NW NW SE 21-35n-77w, is coring at 7171 feet with the Second Wall Creek sand expected at any time. The test, when it started to drill ahead for the second sand found that hole had bridged in the bottom of the first Wall Creek, blanking out a considerable portion of the best saturated section in the first sand. On almost a week's swabbing operations in the First Wall Creek from 6680 to 6840 feet finished with a flow of about 15 barrels of fluid per hour. The company plans to again test the First Wall Creek sand after drilling and testing the Second Wall Creek.

Productive gas limits of the North Baxter Basin field, Sweetwater County, were extended three quarters of a mile west this week. Rocky Mountain Drilling Company completed J. S. Lee, CNE NW SE 10-19n-104w, for 6,600,000 cubic feet of gas initial under 450 pounds rock pressure shut-in. Production was encountered in the Sundance sand at 3,611-3,650 feet.

In the Lance Creek field, Niobrara County, Continental Oil Company's Deilman 3-A, SE SE SW 5-55n-65w, an outpost, is at critical depth coring in the Leo sand at 5,385 feet and showing scant saturation. The Leo sand topped at 5,343 feet. Development of commercial production in the Deilman will be a considerable stimulus to Lance Creek activity on the southeast side the field, as C. L. Price's recent Lamb 1 Leo producer is to activity on the west side the field.

West side wells reported excellent progress and all moved out of the location stage during the week. J. E. Manning and associate's interesting extension test a little more than a quarter mile west and north of the nearest Leo sand producer, is waiting on cement to set around the 13⅜-inch casing at 300 feet. Test is Elsie Pecklow 1, SE SE SE 1-35n-65w.

North offset to the Price-Lamb, A. B. Cobb's Novick-Ong 3, NE SE SW 6-35n-65w, is cementing 13⅜-inch at 286 feet with total depth at 290 feet. Mackinnie Oil & Drilling Company's east offset, Thompson 3, CNW NE NW 7-35n-65w, is drilling at 1,960 feet.

Continental Oil Company's Tom Bell 11, SW SW 27-36n-65w, is drilling at 2,382 feet, and Sam Joss 5, SW NE 6-35n-65w, is drilling at 3,678 feet. Argo Oil Corporation's Ford 5, SW SE 33-36n-65w, is drilling 3,412 feet. Ohio Oil Company's Carrie Putnam 10, CSW SE NW 4-35n-65w, is drilling at 2,654 feet.

In Carbon County, Ohio Oil Company has a near completion in Harrison-Cooper 14, CSE NW SW 35-20n-78w, Rock River field, which cored excellent saturation in the Sundance from 3,072 to 3,130 feet. The 7-inch production string is run to top of saturation and well is waiting on cement to set.

Ohio Oil Company is moving in and rigging up heavy rotary equipment for A. J. Hazlett Estate 3, CNE SW NE 34-23n-79w, Allen Lake gas field, Carbon County. The well will be a deep one to the untested Tensleep sand to prospect for oil. In the Big Medicine Bow field, Ohio Oil Company joint for the account of the California Company is rigging rotary for State-D. J. Griffin 3, SE SW NE 36-21n-79w, located three quarters of a mile southeast of companies' State 2, southernmost producer

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MOUNTAIN STATES Completions

WYOMING

Company, Well and Location	In t. Prod Bbls.	Depth
NATRONA COUNTY (Salt Creek Field)—		
Stanolind, Tensleep 8, cnw nw 35-40n-79w	177	4011
SWEETWATER COUNTY (Lost Soldier Field) —		
Sinclair-Wyoming, Lost Soldier 77, se ne ne 10-26n-90w	500	4026

*Failures; †Junked; ¶Million cu. ft. gas.

which initialed 80 barrels hourly, in 1936, in the First Sundance.

Another important Carbon County location getting underway this week is the Wyco Oil Company's Union Pacific 1, NE SE NE 3-23n-79w, on the Oil Springs Dome. Location is a quarter mile northwest of Ohio Oil Company's Baker 1, NW NW SW 2-23n-79w, which completed several years past for 60,000 cubic feet daily at plugged depth of 560 feet in the Frontier sand after backing up from the Muddy to 1,499 feet. The test, rigging up rotary, will drill to test the Dakota series, the Sundance, and possibly Pennsylvanian sands. Oil Springs is a narrow faulted anticline formed in the Upper Cretaceous beds with surface formation the Frontier sands.

Sinclair-Wyoming Oil Company has prospects of a good completion in Wertz 12-B, SEC NW NW 7-26n-89w, third deep well to the Tensleep sand in the Wertz oil and gas field, Carbon County. The well cored good saturation from 5,747 to bottom at 5,770 feet, and is waiting on cement to set around the 7-inch casing at 5,739 feet.

Wyshawn Oil Company's Lindley 1, N SE SE 34-32n-69w, is moving over heavy cable tool machine to carry hole to 2,000 feet where it expects to find the Embar-Tensleep zones on the south side of the major fault transversing Shawnee. The White River formation lies directly over the Chugwater formation on the south up-throw side of Shawnee. New strings of casing, 1,000 feet of 8-inch, and 2,000 feet of 6-inch, have been moved onto location.

E. B. Jones, for the Chadron-Osage Trust, is drilling water well on the State 1, CSW SW SW 16-32n-69w, location preparatory to moving in heavy rotary equipment to carry the deep test to the projected 5,500 to 6,000 feet to reach the Wall Creek sand. Hole bottoms at 4,064 feet in a sand, tentatively identified as the Shannon.

With the cloud of over-production lifting from northern Montana fields through the building of several new refinery outlets, four new wells started this week in the Cut Bank field, Glacier County.

New California dock begins operation

Los Angeles. — Nine offshore pipe line loading terminals now serve oil operators, with the completion of the Petrol Corporation's new $325,000 facility at Point Sal, 21 miles south of Port San Luis.

During the past week, the initial load of crude from the Santa Maria Valley field was taken by the tanker Brandywine, despite heavy seas that delayed for a time, the tanker from approaching its dock.

The station has a shore-side storage capacity of 160,000 barrels and two 12-inch submarine loading lines, 3250 feet long to the loading mooring.

Other loading stations are at El Segundo, Standard Oil Company; El Capitan, General Petroleum Corporation; Ventura and Gaviota, Associated Oil Company; Port San Luis-Estero Bay, Standard Oil Company, Union Oil Company and The Texas Company; Elwood, Richfield Oil Corporation.

ILLINOIS DEVELOPMENTS

Older fields to be heard from with new methods.

* * *

Oil flow record again broken in Noble Township.

Olney, Ill. — Indication that the older Illinois oil fields may be revived this summer and vie for some of the attention that has been commanded by the newer pools was given last week when Ohio Oil Company's Moad Powell well, five miles west of Vincennes, Lawrence County, which has been producing for 26 years and lately at the rate of approximately 8 barrels a day, was cleaned out, acidized with 1000 gallons and swabbed, resulting in flush production of 240 barrels the first 24 hours. It is expected to settle down to between 25 and 50 barrels a day.

The Powell well, on a 10-acre tract, has recovered between 7000 and 8000 barrels an acre in the past 26 years, compared to recovery in the new fields estimated by geologists at 8000 barrels an acre. A recent core was taken by the Illinois state geological survey from a well in the old Lawrence County field that had been producing for 25 years indicated a remaining saturation of over 14,000 barrels an acre. Many wells drilled over a score of years ago in the old fields were abandoned in the McClosky because of too tight a saturation. Modern methods of acidizing would have placed these wells in the ranks of commercial producers.

Owners of many old Lawrence County wells are reported planning to deepen in search of a heavier McClosky saturation if acid treatment fails to bring a good yield.

The Richland County initial production record fell for the second time in as many weeks with completion of Gulf Refining Company's H. Eberhart 1, Section 5-3n-9e, in the Noble Township pool, with an initial production of 2622 barrels for the first 24 hours. The Gulf well comfortably passed Pure Oil Company's C. T. Montgomery B-5, a short distance to the northeast, which a week ago hung up a record officially posted at 2421 barrels, and came within 20 barrels of the state record held by Pure's Bunny Travis 1, which opened the Clay City field last May 5 with an initial of 2642 barrels daily. Several wells near the Eberhart and Montgomery leases are nearing production depths and it is possible this record may be equalled or surpassed shortly. Gulf is drilling H. Eberhart 2 at 1900 feet, making rapid progress toward the McClosky.

Clay City Test Dry

The second test to be drilled within the Clay City limits, Vermilion Oil Company's J. B. Smith 1, Section 20-3n-8e, Clay Township, Clay County, was dry at 3005 feet. It was an offset to the village's only producer, Danville Oil Drillers, Inc.'s C. D. Duff 1, completed in January with an initial yield of 124 barrels daily.

Henshaw Brothers, Whisenant & Trenchard announced location for their cooperative Shelby County test for the Milo McKittrick farm, a mile north of Fancher. Equipment is being moved in and the wildcat is to be spudded next week. A rotary outfit will be used, and the hole will be carried to the McClosky unless commercial production is obtained at a shallower depth. Whisenant & Trenchard have 1600 acres under lease in Lakewood and Clarksburg Townships.

Operations at Stipes et al's C. H. Jenkins 1, Section 30-10n-9e, Sumpter Township, shut down for the past several weeks, are to be resumed. Casing will be lowered in an effort to shut off water, and if this is successful the well will be carried to the McClosky. It is now below 2100 feet.

Sunshine and high winds last mid-week gave encouragement to basin operators whose operations have been curtailed for several months because of soggy roads and fields that made movement of equipment almost impossible in many areas. While drilling in several of the proven areas, where acreage is controlled by one or two major companies, will proceed in an orderly manner this season, there are several other regions, among them the new Centralia area, where a wild play will develop. Wildcat activities this summer in yet untested sections of the basin area should result in new pools, considering the record of the past season and wildcat work contemplated.

ILLINOIS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
Vermilion Oil Co., Smith 1	*	3005
CLINTON COUNTY—		
John Pugh, Phoenix 1	490	1375
Williams 1	250	1375
Thompson & Self, Hanseman 1	320	1391
Rourke &Moore, Quick 1	225	1374
Adams O&G Co., Marshall 1	180	1390
Selegna Oil Co., Meicenhiemer 1	150	1372
Carter, Buehler 1	125	1380
Shell, Kallmel 1	100	1373
RICHLAND COUNTY—		
Gulf, Eberhart 1	2622	3000
Pure, Montgomery B-5	2421	3010
Hudley 2	960	3000
Palmer-Taylor 9	811	2975
Coen 13	108	2968
Ring-Burr 1	14	2958
Parsall-Graham Oil Co., Miller 1	125	2993
WASHINGTON COUNTY—		
Frost, Vickers & Patton, Franks 1	*	1087
WAYNE COUNTY—		
Texas Co., Silverman 2	*	3335

*Failures; †Junked; ¶Million cu. ft. gas.

Who owns royalties in Michigan?

Oral arguments on an appeal from a decision of Circuit Judge Neil E. Reid, Mt. Clemens, that the state, rather than the homesteader, is entitled to royalties on oil produced from homesteaded land were heard by the Michigan supreme court last week at Lansing. The action was brought by Lena L. Rathbun against the State of Michigan, J. V. Wicklund Development Company, Rex Oil & Gas Company, Simrall Pipeline Corporation and McClanahan-Leonard Pipeline Company. Attorney General Raymond W. Starr said the suit would affect half of the homesteaded lands in the state, which are considered potential oil and gas lands. The state has thus far collected $261,287 in royalties from such lands.

EASTERN FIELDS

Wildcat test to start in southern Virginia

Pittsburgh.—A wildcat test near Sanville, Henry County, Virginia, about 10 miles west and slightly north of Martinville, is to be started this month by J. Ray Goodwin, who will use modern equipment capable of drilling to 5000 feet. The location, around which Goodwin has acquired leases on 2500 acres, has been given favorable reports by geologists. It is in Western Virginia, about 12 miles north of the North Carolina line. A test in this area was started about 10 years ago, but abandoned at 1500 feet when financial backing could not be obtained to carry the hole deeper. Goodwin, who is a Colorado mining engineer, believes commercial production may be obtained below the flint and granite which in this region runs at about 1800 feet.

A shot at Paul K. Weekley's F. W. Bell 2, between Leading and Sinking creeks, Gilmer County, West Virginia, boosted Maxon sand production from 6 to 12 barrels daily, along with 30,000 cubic feet of gas. The well is 8 miles from present oil production and opens a large new area to development.

In Fayette County, on Chestnut Ridge near Wymps Gap, the Houze Glass Company spudded Paul Dunham 1, which is scheduled for the Oriskany sand expected at about 7000 feet. The company has over 2000 acres under lease in the area, and the well is 9 miles southwest of Summit Hotel 2, South Union Township well drilled by Potter Development Company, W. E. Snee et al which last week registered an open flow of 3,500,000 cubic feet and is now shut in at 6768 feet awaiting further orders. The Houze well will be drilled by Frank Fairman, contractor of Wellsville, New York.

New York State Natural Gas Company announced two new locations, bringing its operations in the New York-Pennsylvania deep sand gas fields to seven. They are for the L. Dickinson farm, Gaines Township, Tioga County, and the J. D. Morley farm, Bingham Township, Potter County, Eight wells are drilling and one rig is up in Steuben County, New York, seven of the operations being in the new Woodhull Township field. Other operations on the New York side are: Two in Allegany County, one in Chemung County and one in Schlyler County. There are eight tests underway in Potter County, and one in Schyyler County. There are Warren County, on the Pennsylvania side.

Midwest Development Corporation will drill a deep test on the Perry Jackson farm, 5 miles east of Vincennes, Knox County, Indiana, scheduled for the St. Peters sand unless production is obtained in commercial quantities at higher levels. The possibility of obtaining production in the St. Peters has been receiving increased interest by Indiana operators in view of recent successful operations in Tennesee. The formation, which has not yet been tested in Knox County, is the deepest known in this area. Deepest Knox County test was Worthing Petroleum Corporation's wildcat west of Sandborn which was abandoned last winter after encountering salt water in the Niagara.

EASTERN FIELDS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
OHIO		
ASHTABULA COUNTY—		
Maumee Gas & Utilities Co., Smith 1	¶.15	2065
ATHENS COUNTY—		
B. Anderson, Ellis 1	¶1	1047
CUYAHOGA COUNTY—		
Dillon & McFrederick, Tuefel 1	*	2960
FAIRFIELD COUNTY—		
City Nat. Gas Co., Lamb 1	¶10	2110
JEFFERSON COUNTY—		
Ellis et al, Telfer 4	*	1275
MONROE COUNTY—		
Big Tree O&G Co., Dye 1	*	1770
NOBLE COUNTY—		
Bircher O&G Co., Bircher 1	¶.15	1630
WASHINGTON COUNTY—		
Pennington & Schaffer, Curtis & Price 1	12	804
H. Dickson, Ashton 1	*	1600
H. Huffman, Huffman	¶.08	1678
WEST VIRGINIA		
BARBOUR COUNTY—		
Hope Nat. Gas Co., Indian Fork Coal & Coke Co. 7800	¶.08	4317
BOONE COUNTY—		
Owens-Illinois Glass Co., Cassingham Coal Land Co. 29	¶.15	2310
CABEL COUNTY—		
Nida Gas Co., Ritter et al 1	¶1.57	2960
Gibbs Gas Co., Phillips	¶.10	3675
CALHOUN COUNTY—		
Boggess et al, Wilmoth 2	¶.21	2318
CLAY COUNTY—		
Hope Nat. Gas Co., Davenport 7796.	¶	1925
GILMER COUNTY—		
E. Hughes, Whiting 1	¶.10	1055
South Penn Oil Co., Young 1	*	2593
Hope Nat. Gas Co., Bennett 7799	*	3283
KANAWHA COUNTY—		
Godfrey L. Cabot, Roane Land Co. 2	2	5102
United. F. G. Co., Beane 4779	¶7.88	4949
South Penn Oil Co., Scott 4	¶1.50	4928
Koontz & Osborne, Osborne 6	¶.55	1192
MARSHALL COUNTY—		
J. C. Ruckman, Moszner 1	¶	480
MONONGALIA COUNTY—		
Philadelphia Oil Co., Shane 5408	¶.75	3260
KENTUCKY		
DAVIESS COUNTY—		
Daugherty & Ellis, Howard 5	50	1070
FLOYD COUNTY—		
Fred Williams, Woods 1	¶2	1510
Stanley Heirs 5	¶.10	2790
Allen et al, Collins 1	¶.30	2603
Hale et al, Caldwell Hrs. 1	¶.12	2800
HANCOCK COUNTY—		
Ralston et al, Smith 5	¶.05	635
Hupp et al, Richards 2	*	....
JOHNSON COUNTY—		
E. J. Evans, Thealka Coal Co. 3	¶.10	1790
McLEAN COUNTY—		
J. C. Ellis, Weil Bros. 1	*	1710
MARTIN COUNTY—		
Virginian G. & O. Co., Cassady 1	60	1540
Cassady 2	35	1506
Federal Gas, Oil & Coal Co. 1260	22	1456
OHIO COUNTY—		
Teller et al, Whitehouse 13	20	....
Lang et al, Camron 4	20	....
Nollem O&G Co., Crowe 4	12	632
Rex-Pyramid Oil Co., Wells 4	*	627
PERRY COUNTY—		
Hazard Gas Co., Walls 1	¶.12	3107
PENNSYLVANIA		
BEAVER COUNTY—		
T. W. Phillips G&O Co., Smith 1	¶3.50	4555
GREENE COUNTY—		
South Penn Oil Co., Harvey 12	30	3160
WASHINGTON COUNTY—		
Duquesne Gas Co., Day	¶.16	3013
Wherry, Polonis et al, Polonis 1	¶.10	2975
Nuss et al, R. C. Garber 1	¶.08	3008

*Failures; †Junked; ¶Million cu. ft. gas.

MICHIGAN FIELDS

Edenville offset success stirs more interest.

* * *

Deeper and more prolific in Arenac.

Mt. Pleasant, Mich.—With an offset well equal to the discovery test's initial, and three outlying wells due to reach the projected test formations by the end of the week, Michigan development interest chiefly centers on the Edenville area, Midland County, opened in late January this year.

Mammoth Producing & Refining Corporation's Rickets A1, NE SE NW, 27-16n-1w, Edenville township, west offset to Chapman et al's State 1 discovery, drilled from Dundee top of 3750 feet to 3812 feet with a 372-barrel flow recovery the first 13 hours. Initial hour gauge was reported at 46 barrels, and operators, forced to pinch in after the third hour estimated natural potential at 610 barrels daily.

Delay in approval by the Michigan Public Utilities Commission of an application by Michigan-Toledo and Simrall Pipe Line Corporation to purchase Pure Transportation Company's Buckeye system may cause an acute outlet condition for the new field. Michigan-Toledo, has a new 5.6-mile, 6-inch line from the Edenville field completed west to the Pure 6-inch, which originates in the Buckeye field and terminates in Greendale at the Pure and Simrall

MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEGAN COUNTY—		
Champion Dev. Co., Young 1, sw nw ne 26-1n-12w	*	1805
Muskegon Oil Corp., Hardy 4, ne sw se 16-4n-13w	150	1632
Ravena Gas & Oil Co., Miller 1, se ne nw 17-4n-13w	*	1695
GLADWIN COUNTY—		
Fortney Oil Co., Trine 1, nw sw nw 16-17n-2e	*	3666
Gordon Oil Co., State E1, nw nw nw 28-17n-2e	25	3542
J. V. Wicklund Dev. Co., Wright 4, nw ne ne 28-17n-2e	34	3547
Sun, Hipfel 1, se sw sw 2-18n-1w	35	3647
Strohkirch 10, nw ne ne 9-18n-1w	90	3670
Rex Oil Co., Foster 2, ne sw se 26-18n-1w	110	3597
R. L. Tope, Buhler 6, se nw ne 26-18n-1w	375	3592
Burris & Monger, McMahon 1, nw ne nw 1-17n-1w	40	3600
ISABELLA COUNTY—		
Pure, Cook 1, s½ sw ne 11-14n-6w	*	3744
Beutler 2, sw nw ne 33-15n-6w	150	3713
MIDLAND COUNTY—		
Mammoth, Ricket A1, ne se nw 27-16n-1w	600	3812
MONTCALM COUNTY—		
Hirzel-Leland, Hansen 1, sw sw se 31-10n-7w	*	3202
Daily Crude Oil Co., Weatherby 2, ne nw se 20-12n-9w	*	3451

*Failures; †Junked; ¶Million cu. ft. gas.

oumping stations. About 6000 barrels of crude from the discovery well and offset have been placed in storage and another 3000 barrels moved out by truck. However, road conditions have stopped truck movement.

This week both the discovery and offset producers in Edenville were shut in due to lack of storage. Hearing on the pipe line purchase is slated for April 1, and if approval is granted, the system can be placed in service within 24 hours, officials said.

Three locations due north of the discovery producer, Smith Petroleum Company's Snyder 1, SW SW SE 22-16n-1w, logged Dundee lime at 3752 feet and set 5-3/16-inch casing at 3762 feet. Mammoth expected to have the 3760-foot casing point on Higgins A-1, north offset to the discovery by the end of the week.

Three miles east of the discovery well, M. L. Jorgensen's Gamble 1, NW NE SW 25-16n-1w, reported 3 feet low in the base of the Red sand, has reached 2950 feet, while mid-way between this farthest drilling outpost and the discovery, Gordon Oil Company's Verity 1 (first test on a 199 acre farmout from Carter Oil Company), NW SW NW 26, set 6-inch at 1492 feet through the Marshall-Red sands.

While 17 tests currently are active in the Edenville area, operators have experienced considerable trouble due to spring lease and road conditions. Several operators have delayed starting of planned tests due to roads.

H. L. Gentry's Christensen 1, SE NW NE 29-11n-8w, Pine township, Montcalm County, is now on test with an average flow production of 24 barrels daily from Traverse lime at 2837 feet. Top of Traverse was reported at 2757 feet. The test, a wildcat, originally was projected for the 3200-foot Dundee zone but oprators now plan to produce from the shallower lime horizon.

New interest was manifest for the Adams township, Arenac County field, this week when Pure Oil Company's Shearer 1, SE SE NE 26-19n-3e pumped and flowed 136 barrels the first 12 hours after being acidized at 2155 feet in Traverse limestone. Previously from 25- to 150-barrel production had been established in the Upper Traverse in Adams township, with previous wells completed between 2000 and 2150 feet. Deepening of a deeper, and apparently more prolific pay, is expected to bring several new starts in the district.

Pure Oil Company at one time had most of the Ogemaw-Arenac County area under lease and in 1928 to 1931 carried on extensive core testing and deep drilling in the district. Later, it farmed out most of its holdings and leased direct development in either the latter opened West Branch or Clayton fields. The current test is the first drilled by the company in that district of Michigan for several years.

Kubela hearing is scheduled for April 8

A hearing on the Kubela field, Wharton County, will be held before the Texas Railroad Commission on April 8 at Austin. The purpose of this hearing is to determine what operating rules should be provided for the field.

IMPORTANT WILDCAT TESTS

ALABAMA

BARBOUR COUNTY—H. A. Stebbinger's Town of Lewis 1, 11-9n-25e, lcn.

CHOCTAW COUNTY—Joe Modisett et al's McCorvey 1, se sw sw 20-9n-2w, temp abn 7520 ft.

CLARKE COUNTY—Greer et al's Augustine Meaher 1, se nw 9-7n-1e, mim.

HOUSTON COUNTY—Rice O&G Co.'s Oakley Est. 2, nw sw 9-3n-29e, sd 4975 ft.

MOBILE COUNTY—J. C. Prine's King 2, 4-1n-4w, sd 1100 ft. Grand Bayou O&G Co.'s J. A. Stafford 1, sw sw 24-7s-3w, rur.

ARKANSAS

BRADLEY COUNTY—Phillips Pet. Co.'s Marsden 1, (was Splawn 1), ne sw 9-16-11, dk and mir.

CALHOUN COUNTY — J. R. Lockhart's Hearnesberger 1, 16-11-13, woc surf cas.

CLAY COUNTY—Canadian American Oil Co.'s Smith 1, c ne nw 9-20-8, elev 375 ft, top Nacatosh 800 ft, sd 1005 ft shale.

CLEVELAND COUNTY—Marwick & Olds' Aubrey Vance 1, nw nw 18-11-11, elev 241 ft, Nacatosh 2809-63 ft, sd 2901 ft.

CRITTENDEN COUNTY—Manning & Martin's Cartwright 1, se nw sw 16-7n-8e, sd 4230 ft sand and shale.

COLUMBIA COUNTY — Kerr-Lynn Oil Co.'s Barnett 1, se sw ne 14-17-20, elev 321 ft, top Permian lime 7618 ft, 7-in csg 7051 ft, 5½ in csg 7720 ft, perf csg 7623-51 ft, flowed 37.2 grav oil, si, for tanks, opened flowed 78 bbls in 2 hrs, ceased to flow, started show sw, due leak in csg, flowing through 1½ in choke on drill stem 22 bbls oil per hour, td 7740 ft. Standard of La.'s Bodcaw-Barbara 1, (formerly Bodcaw Lbr. Co. 1), c se ne 18-16-22, elev 253 ft, base massive anhydrite 3422 ft, top Travis Peak 4312 sd abn td 7444 ft. Crone 1, c nw se 8-16-22, elev 271 ft, top anhydrite 3288 ft, top Permian lime 7264 ft, cored sat lime 7264-72 ft, showed 660 ft oil & mud 20-min drill stem test 7225-72 ft, ran electrical tester, cemt 7 in csg 7260 ft, arr test td 7272 ft. W. P. Phillips 1, 15-17-19, showed 105 ft mud & oil with sg in 20-min drill stem test 4616-50 ft (Travis Peak), showed sw in drill stem test 5320-36 ft, dr 5510 ft. Warren 1, nw nw 17-16-22, lcn. Waters 1, c se se 7-16-22, lcn; Crone 2, se sw 8-16-22 lcn; McKean 2, nw sw 8-16-22, lcn. E. O. Olds' Mary Dennis 1, nw se sw 4-17-21, owdd, td 4513 ft. L. A. Longino's Baker 1, se nw nw 13-17-20,lcn.

DESHA COUNTY—Columbian Fuel Corp.'s Victoria Cross 1, sw sw 34-8s-3w, woc surf csg.

HEMPSTEAD COUNTY—Easton, May & Murdock's R. M. LaGrone 1, ne ne 5-12-26, sdtr at 2645 ft, old td 2944 ft.

JOHNSON COUNTY—Ark. La. Gas Co.'s Hudson 2, se nw 14-10-24, mim.

LINCOLN COUNTY—Fitzwater, Inc.'s Bowens 1, nw sw ne 26-9-6, sd 1130 ft.

LITTLE RIVER COUNTY—Henan & Coe's W. D. Waldrop 1, sd 1960 ft. J. G. Strahan et al's Dierks Lbr. Co. 1, sw se 21-12-28, arr run formation tester, 2320 ft.

LONOKE COUNTY—J. W. Eddington et al's Anderson 1, nw ne 7-4-9, set 12 in csg, woc 85 ft.

MILLER COUNTY—F. F. Earles' General American 1, se sw 20-14-26, mim.

UNION COUNTY—E. G. Bradham's S. L. Robbins 1, sw ne 12-19-16, elev 214 ft, sd 2300 ft (contract depth). Joe Modisett et al's Frost Lbr. Co. 1 (Union Sawmill fee), ne ne 8-18-12, mim.

CALIFORNIA

LOS ANGELES COUNTY

BELLFLOWER—George L. Clayton's Scott 1, 32-3-12, sd 6525 ft.

CASTAIC—Royal Land's No. 1, 8-4-17, dr hard shale, 375 ft.

LA MIRADA—Carmenita's Ravera 1, 21-3-11, sd 50 ft.

LOMITA—Sebastian Kramer's No. 1, 25-4-14, rur.

MONTEREY PARK—Monte Cristo's Garvey Ranch 1, 27-1-12, sd 4240 ft.

MINT CANYON—Mint Canyon's Jennings 1, 33-5-14, sd 1862 ft.

NEWHALL—National Petroleum's No. 1, 27-4-16, dr hard conglomerate, 1760 ft.

PALOS VERDES—Rolling Hills' Weston 1, 27-4-14, sd 4220 ft.

PICO—A. S. Johnston's No. 32, 5-2-11, dr sandy shale, 4310 ft.

PICO CANYON—A. G. Burt's No. 1, 36-4-17, sd 2555 ft.

TOWSLEY CANYON — Towsley Canyon's Hammon 1, 8-3-16, pumping est. 200 bbls, 25 percent cut, 4100 ft.

WEST LONG BEACH — Pioneer Petrol's Irvine 1, 26-4-13, rur.

WHITTIER—Colorado's No. 19, 22-2-11, lcn. Fullerton's Whittier 5, 25-2-11, dr sand and shale 1100 ft. George G. Langstaff's Iliff 1, 8-2-11, lcn.

FRESNO COUNTY

CIERVO—Superior's Ciervo Unit Plan 1, 20-16-13, abd 6001 ft.

CLOVIS—Central Valley's No. 1, 1-12-20, dr sand and shale 588 ft.

COALINGA—J. M. Conlon's No. 1, 25-19-14, sd 100 ft. Petroleum Securities, Gatchell 2, 18-20-16, dr brown shale and grey sand 6811 ft. Shell's No. 36-1, 36-19-14, rig. Shell's Conlon 1, 30-19-15, sd 3160 ft. Shell's No. 1, 35-20-14, dr sand and shale 805 ft.

EAST COALINGA—Pure's SPL Co. 1, 31-18-17, fsg drill pipe, td 10,861 ft.

JACALITOS HILLS—Jacalitos Petroleum's No. 1, 14-21-15, sd 5745 ft.

PANOCHE HILLS—Panoche Hills' No. 1, 12-14-11, fsg drill pipe, td 635 ft.

KERN COUNTY

ARVIN—General Petroleum's Pauley 1, 22-31-29, sd 500 ft. Petrex Inc., Petrex 1, 32-31-30, sd 3635 ft. Union's Berry 1, 15-31-29, dr sandy shale and sand 5975 ft.

BELLVIEW—Continental's KCL D-1, 10-30-26, abd 8475 ft. Superior's KCL 9, 3-30-26, abd 7870 ft.

BELRIDGE—General Petroleum's St. Helens 1, 12-28-20, dr hard brown shale 8627 ft. Ohio's Ford 1, 6-29-22, dr shale 3746 ft. Shell's Voight 1-1, 32-27-20, dr shale and sand 3375 ft.

BUENA VISTA LAKE—Ohio's KCL A-8, 32-31-26, dr hard shale 9179 ft.

DEVILS DEN—Amerada's Beer 5, 22-26-19, dr hard brown shale 7294 ft. Gibson's Alferitz 3, 14-25-18, sd 150 ft. Little Major's Jaster 1, 36-25-18, sd 250 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
bs—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so&g—*show oil and gas.*
fsg—*fishing.*	spd—*spudding.*
ft—*feet*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

DOMINION—George W. Dean's 1, 26-26-28, rig.

EDISON—British Consolidated's No. 1, 11-30-30, sd 50 ft. George W. Johnston's Brown-Pallette 1, 33-29-30, sd 1020 ft. Ray W. Stevens' No. 1, 22-30-30, rig. Wood-Callahan's Porter 1, 20-30-29, dr sand and shale 4187 ft.

FRUITVALE—Shell's KCL A-58, 29-29-27, dr sand and shale 6810 ft.

GRAPEVINE-WHEELER RIDGE — Richfield's KCL 1, 28-11-20, dr sand 825 ft. Universal Consolidated's No. 1, 33-11-19, fsg 4988 ft.

GREELEY—Shell's KCL 1B-76, 16-29-26, dr sand and shale 6589 ft.

LERDO—Standard's KCL 18-1, 29-28-26, dr sand and shale 6113 ft.

McFARLAND — Tide Water Associated's Pond 1, 17-26-25, lcn.

McVAN—Bargol's No. 2, 11-27-27, sd 1245 ft. Bargol's Chaflin 2, 10-27-27, dr green shale 2060 ft. Desert Glow's No. 3, 14-27-27, rig. Framac's Brown 3, 22-27-27, running 10-in. csg 1351 ft. Hobee's McVan 3, 14-27-27, sd 1185 ft.

POSO CREEK—Garven & Reynolds' No. 1, 30-27-27, rig. Harkness & Laws' Hunt 1, 28-27-27, foundation.

RICHGROVE—Amerada's No. 1, 2-25-27, lcn. Dilamar's Quinn 1, 15-25-27, sd 2956 ft.

SAN EMIDIO—Shell's KCL 1-A, 26-11-22, dr sand and shale 7987 ft.

STRAND—Continental's KCL E-1, 17-30-26, rig.

TEMBLOR HILLS—Chico Martinez's Exeter 1, 1-29-20, bailing sand and mud 1065 ft.

WASCO-SEMITROPIC—Continental's KCL A-2, 8-27-24, dr hard shale 14,804 ft. Standard's Randolph 2, 14-27-23, rigging gas lift, 9535 ft.

KINGS COUNTY

PYRAMID HILLS — Pyramid Production's Rotherford 1, 27-24-18, sd 3090 ft.

TULARE COUNTY

DUCOR—Crusaders' Muller 1, 1-24-27, sd 37 ft.

TIPTON—Magnet's Glaze 1, 15-22-26, sd 3285 ft.

SANTA BARBARA COUNTY

CARPINTERIA—Carpinteria's No. 1, 32-4-25, dr brown shale 1956 ft.

CASMALIA-CAT CANYON—Standard's Los Flores L&O Co. 1, 27-9-33, redr 3095 ft.

GAREY—Valoco's Haslam 1, 28-10-23, dr sand and shale 378 ft.

CUYAMA—Claude Fisher's No. 1, 28-11-28, dr hard broken shale 1264 ft.

GAVIOTA—Gaviota's Hollister 1, 35-5-33, supplies gas for Wilshire well, td 3205 ft. Wilshire's Hollister 1, 35-5-33, brown shale, fsg 3079 ft.

GATO RIDGE—Moyle Petroleum's No. 1, 4-8-32, sd 3795 ft.

LOS OLIVOS—United Western's Bradley 1, 15-7-30, dr hard shale 2860 ft.

ORCUTT—Bankline's Silva 1, 7-9-33, rig.

PURISIMA—Alphonso Bell's No. 4, 33-8-34, completed 35 bbls daily net, 60 percent cut, td 3180 ft.

SANTA RITA HILLS—O. C. Field's Santa Rita 1, 11-7-33, abd 3360 ft.

SUMMERLAND—Gauthier's No. 17-1, 22-4-26, sd 1400 ft.

SAN LUIS OBISPO COUNTY

ELKHORN—California Production's Job 1, 6-10-24, dr hard shale 1565 ft. Superior's No. 1, 7-32-22, sd 2210 ft. Western Plains' Bell 1, 7-31-21, sd 4010 ft.

EDNA—Loma Grande's Luis 1, 28-31-13, rig. J. D. Martin's A. Pricco A-4, 5-32-13, sd 4000 ft.

PASO ROBLES—Vanguard's No. 1, 14-27-14, sd 4360 ft. Ajax Production's Union 1, 27-26-13, sd 475 ft.

VENTURA COUNTY

CAMARILLO—The Texas Co.'s Edwards 1, 19-2-21, fsg drill pipe 6111 ft.

OXNARD—Walter G. Rowe's L. Johnson 1, 15-1-22, co 4115 ft.

OJAI—High Mesa's No. 1, 16-4-22, sd 1321 ft.

SESPE—Condor's Condor 1, 6-4-19, sd 2195 ft. Continental's Elkins 1, 23-4-19, foundation. Garmack's Orcutt 1, 28-5-19, grade. Garmack's Crosby 1, 14-4-19, grade. La Salle & Van Dissen's No. 1, 17-5-19, grade. Merchant's Cochrane 8, 1-4-20, sd 2650 ft. Speik's Speik 1, 33-5-19, rigging pump 3440 ft. Sespe's No. 1, 1-4-20, sd 2650 ft. George Terry's No. 1, 23-5-20, sd 1340 ft. Willamson's No. 1, 1-4-20, sd 540 ft.

SIMI—Germanina Truccano's No. 1, 5-2-17, sd 1005 ft.

SOUTH MOUNTAIN—Clipper's Schieferle 1, 17-30-20, material. The Texas Co.'s Yale Richardson 5, 13-3-21, r sand 3071 ft.

TAR CREEK—Section 30 Oil Co.'s No. 1, 20-5-19, sd 1611 ft.

TIMBER CANYON—Stallings, Senter & Ahlburg's Stallings 1, 24-4-21, sd 665 ft.

ORANGE COUNTY

KRAEMER—Congress' Kraemer 1, 36-3-9, rebuilding rig 2558 ft.

SAN BERNARDINO COUNTY

CHINO—Southern Counties' Los Serranos 1, 22-2-8, rig.

COLORADO

CHEYENNE COUNTY—Gulf Oil Corporation's Union Pacific-Larsen 1, cse nw 13-13s-49w, dr 4895 ft.

FLORIDA

LEVY COUNTY—Fla. Oil Discovery Co.'s Sholtz 2, sw sw ne 9-15s-13e, sd 2620 ft.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw nw se 19-4n-24e, elev 110 ft, cemtd 6⅝ in csg 3935 ft to shut off water, dr 3992 ft, hd shale strks lime.

POLK COUNTY—Edw. A. Hill, Tr.'s Polk County Lbr. Co. 1, nw nw ne 32-25s-25e, dk.

SUWANNEE COUNTY—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, sd for heavier rig 200 ft.

ILLINOIS

BOND COUNTY—Universal's Molden 1, nw nw nw 24-6n-4w, td 2045 ft, rust. Whitehead's Pollan 1, nw se sw 26-6n-2w, dr 3020 ft. Rigall's Neillson 1, ne ne nw 32-5n-4w, lcn.

CLAY COUNTY—Connie Oil's Schnautz 1, se sw ne 31-4n-8e, cor 3036 ft. Wicklund's McCauley 1, "A", ne sw nw 7-2n-9e, der. Campbell's Henderson 1, cn½ ne ne 7-4n-7e, c&p. Carter's Cox 1, ce½ se sw 14-4n-5w, der.

CLINTON COUNTY—Dalton's Clifton 1, ne sw sw 15-1n-4w, sd 1535 ft. Schlosberg & Siegel's Monken 1, ne sw sw 4-2n-1w, dr 1640 ft. Wright's Wise 1, nw nw se 24-1n-3w, mim. Noll & Conrey's Barth 1, nw se sw 12-1n-1w, td 1393 ft, testing. Gross' Eversgerd 1, sw nw sw 22-1n-4w, fsg 1004 ft. Lilly's Siegler 1, nw ne ne se 12-1n-1w, will lower 6-in csg. Brookside Oil's Dodillet 1, sw sw nw 21-1n-1w, td 1420 ft, abd. Thompson-Self's Hanseman 1, se nw ne 12-1n-1w, td 1391 ft, testing. Penn-Illinois' Noller 1, sw sw sw 28-2n-1w, dr 1580 ft. Stewart's Schnitzmyer 1, sw nw sw 6-1n-1w, sd 120 ft.

COLES COUNTY—Miller's Tomberlin 1, se se se 21-11n-10e, spd and sd. Hughes' Swango 1, csw ne 27-13n-9e, td 903 ft, abd. Stipes' Millage 1, cnl ne se 5-11n-10e, lcn abd.

CUMBERLAND COUNTY — Jolly - Hill-Stipes' Jenkins 1, se ne ne 30-10n-9e, sd 2130 ft. Nat'l Consumers' Vanderhuff 1, nw ne nw 19-9n-9e, mog.

EDWARDS COUNTY—Cotton & Laller's Hays 1, ne ne ne 4-1s-10e, lcn.

EFFINGHAM COUNTY—Kingwood & Carter's Bartel 1, ce¼ ne nw 26-6n-5e, td 4102 ft, testing. Kingwood's McWhorter 1, ce½ se nw 15-6n-6e, cor at 2700 ft. Graham-Duncan's Richers 1, cn½ se nw 18-6n-7e, rur. Kroger's Shoenhoff 1, se nw sw 5-8n-7e, spd and sd. Obermeyer's Atkins 1, nw nw ne 3-6n-9e, sd 1260 ft.

FAYETTE COUNTY — Carter's Miller 1, cw½ nw nw 12-8n-3e, pb to 1550 ft, swb 21 bbls oil and no wtr, IP 93 bbls oil per day, comp. Farrely's Lilly 1, se sw se 16-8n-3e, ur 8-in csg. Wilson & Stokes' Fee 1, nw sw ne 14-8n-3e, lcn. Kesl's Metzger 1 (was Greer's), cn½ ne nw 19-5n-2e, der.

FRANKLIN COUNTY—Washburn's Neil 1, ce½ se se 6-5s-4e, dr 2610 ft.

JEFFERSON COUNTY—Sturbois & Tomberlin's Osborne 1, cnw se 8-2s-2e, dr 2085 ft. Nollem & Benoist's Kelley 1, ne nw ne 25-4s-2e, co 2653 ft. Dee's Hamilton 1, ne sw nw 20-4s-3e, td 2911 ft. Myers Bros.' Duchworth 1, ce½ sw ne 33-4s-4e, rig. Dee & Foltz' Hamilton 1, sw sw nw 20-4s-3e, sd 1718 ft. Hausman's Myers 1, nw nw sw 7-1s-3e, moving mat'l out. Foltz' Carroll 1, ne ne se 16-2s-1e, sd 1853 ft.

JERSEY COUNTY—Boyd's Wyman 1, nw se nw 32-7n-12w, sd 930 ft.

MACON COUNTY—Warner Bros.' Peterson 1, nw nw sw 3-15n-2e, dr 712 ft.

MARION COUNTY—Siegel & Schlosberg's Roddy 1, sw se sw 20-2n-3e, sd 2159 ft. Marion Oil's Wilson 1, ne ne se 18-3n-3e, sd 1475 ft. Hackman & Harris' Britt 1, nw nw nw 36-4n-1e, sd 1050 ft. Albachtan & Sims' Nichols 1, se sw se 12-4n-4e, pb to 2745 ft, co. Dalton's Iro Dalton 1, nw se ne 19-1n-3e, sd 135 ft. Oil Royalties' Suggs 1, csw nw nw 11-2n-1e, spd. Coyer's Mulvaney 1, se ne se 6-2n-4e, spd and sd. Shedden's Pawlica 1, sw ne sw 33-2n-1e, dr 1490 ft. Stewart's Kuester 1, nw sw sw 5-1n-1e, sd 320 ft.

MASSAC COUNTY—Kahle's Harvick 1, sw sw sw 23-14s-3e, co 2873 ft.

MENARD COUNTY—Johnson Bros.' Fee 1, csw sw 24-19n-5w, dr 890 ft.

MONTGOMERY COUNTY — Myer's Klekamp 1, sw sw se 29-8n-5w, mach.

POPE COUNTY—Whitlock's Amthis 1, nw nw ne 12-11s-5e, dr 1585 ft.

RANDOLPH COUNTY—Delaney & Mabee's Wilson 1, ce½ se ne 3-4s-5w, td 3640 ft, abd. Pioneer O&G Co.'s Johnie 1, se nw nw 28-6s-6w, sd 587 ft. Bremen's Wilson 1, se se se 22-6s-6w, spd and sd.

RICHLAND COUNTY — Mammoth's McCauley 1, sw se nw 28-3n-9e, co 3146 ft. Anderson & Cunningham's Franklin 1, nw nw ne 34-5n-10e, spd and sd. Parker's Berry 1, se sw ne 22-2n-14w, spd and sd. Miller & Ake's Schlichenmeyer 1, cne sw se 16-3n-10e, spd and sd. American Exploration's Johnson 1, skid rig to se se nw 29-4n-9e, der. American Nat'l Drlg's Everson 1, ne ne se 23-3n-9e, sd 2526 ft.

SALINE COUNTY—Rogers' Saylor 1, se se se 3-10s-6e, rerun 6-in csg to 1363 ft. Bolton's Beagle 1, nw nw nw 13-9s-7e, td 1871 ft, 100 ft oih 48 hrs, sd.

SCOTT COUNTY—Gregory & Mechling's Foltz 1, nw sw ne 31-14n-14w, sd 1196 ft. Sun Oil's Goodwin 1, cw½ ne se 22-13n-12w, dr 380 ft.

SHELBY COUNTY—Farrior's Smith 1, ne ne ne 1-12n-2e, lcn.

WARDS COUNTY—Schmidt's Strenne 1, ne nw ne 5-1n-14w, spd and sd. Leach Bros.' Lee 1, sw ne se 11-1s-10e, dr 3142 ft. Cotton's Leibke 1, ne ne sw 20-1n-14w, c&p.

WASHINGTON COUNTY — Bitterman's Jesse 1, cse ne 16-3s-2w, sd 1360 ft.

WHITE COUNTY—Heldt's Dagley 1, sw ne sw 12-7s-9e, c&p. Hunt's Smith 1, 11-5s-8e, der.

KANSAS

BARBER COUNTY—Palmer's Warwick 1, cnw 29-21s-10w, rust at 4787 ft. Carter & Wentz' Lytle 1, cne nw 6-32s-14w, dr 4907 ft.

BARTON COUNTY—Price's Hammeke 1, ne ne sw 12-18s-12w, pb to 3429 ft, testing. Shell's Ehrlich 1, sw sw sw 1-16s-14w, dd to 3296 ft, 2800 ft oih. Day's Feltes 1, se se ne 14-16s-12w, sd 1875 ft. Murfin's Rexroot 1, nw nw se 14-17s-13w, dr 900 ft. Crown Pet.'s Schartz 1, sw se nw 7-20s-11w, dr 2894 ft. Price' Wondra 1, nw nw ne 10-17s-13w, dr 1725 ft. Sinclair Prairie's Frederick 1, sw sw se 16-16s-11w, cor to 3346 ft, few oil stains, rng 5-in csg. Silverstein & George's Otte 1, se se nw 2-19s-14w, ru. Gear & Atlantic's Sullivan 1, ne se sw 29-17s-13w, dr 1925 ft. Byers' Weathers 1, sw sw ne 35-20s-14w, lcn.

BUTLER COUNTY—Dustin's Miley 1, se nw ne 17-27s-5e, sg 582 ft. Saco, Kansas & Gulf's Pettit 1, sw nw sw 21-28s-6e, fsg 1700 ft.

CHASE COUNTY—Duffy's Leedy 1, ne nw nw 26-22s-9e, ur 10-in csg 1575 ft.

CHAUTAUQUA COUNTY—Sooby's Davis 1, sw ne nw 29-33s-10e, td 1548 ft, p. 4 bbls oil and 1 bbl wtr, comp.

COWLEY COUNTY—Brewer's McDaniels 1, sw sw sw 24-30s-4e, dr 1650 ft. Brewer's Clark 1, ne se nw 6-31s-4e, td 2874 ft, p. pot. 116 bbls oil, comp. Wakefield's White 1, nw nw ne 4-33s-4e, ur 8-in csg 2270 ft. Milton's Hunt 1, sw sw se 16-34s-5e, lcn abd. Bess & Gralapp's Hunt 1, cnl ne nw 18-34s-5e, dr 1260 ft. Smith's Wilson 1, se sw nw 9-33s-6e, dr 400 ft.

DICKINSON COUNTY—Franks' Huffman 1, nw nw sw 11-13s-1e, rig.

EDWARDS COUNTY—Douglas & Gear's Meade 1, se se nw 35-25s-16w, sdo.

ELLIS COUNTY—Skiles' Jensen 1, sw se ne 26-12s-18w, sd 2910 ft. Duwe & Farris' Hadley 1, se ne se 12-11s-18w, td 3146½ ft, testing. Bradley's Jensen 1, nw nw se 36-11s-19w, sho sulph wtr. Continental's Baumrucker 1, ne ne sw 25-14s-16w, dr 3030 ft. Helmerich & Payne's Stebbins 1, nw nw se 7-13s-20w, dr 3598 ft. Twin Drlg's Hall 1, nw sw ne 1-12s-17w, dr 3397 ft. Hays & Sackrider's Windheltz 1, ne ne ne 2-13s-16w, td 3242 ft, p. pot. 1236 bbls oil, now p. 10 bbls oil per hr. Western Kansas' Cole 1, ne se se 24-11s-20w, dr 1960 ft. Carter's Foster 1, se se nw 1-15s-16w, lost circ at 3412 ft. Hays & Sackrider's Dreher 1, ne ne ne 35-12s-16w, cel.

ELLSWORTH COUNTY—Wixon's Peterman 1, sw sw sw 28-17s-10w, Aw/500 gals.

FINNEY COUNTY—Atlantic's Nunn 1, se se ne 27-21s-34w, fsg 4311 ft.

FORD COUNTY—Sinclair Prairie's Young 1, csl ne 34-27s-21w, rur.

GRAHAM COUNTY—Continental & Cities Service' Morel 1, cw½ e½ ne 15-9s-21w, rust 3718 ft.

GRAY COUNTY — Reynolds' Watkins 1, csw 32-28s-28w, rot rig.

GREENWOOD COUNTY — Whittaker & Johnson's Cannon 1, cel se nw 8-26s-13e, rng 5-in csg. Whittaker's Bressner 1, nw nw se 8-26s-13e, sd 750 ft.

HARPER COUNTY—Franklin Drlg's Walts 1, ne ne sw 24-34s-6w, dr 4884 ft.

JACKSON COUNTY—Lemmick Oil's Marble Savings Bank 1, cne ne 26-9s-14e, dr 660 ft.

JEWELL COUNTY—Hollingsworth's Wolf 1, nw sw se 14-4s-8w, sd 100 ft.

LANE COUNTY—Phillips Pet.'s Kees 1, cse se 3-19s-30w, woc at 4911 ft.

McPHERSON COUNTY—Pulse' Boesker 1, se se nw 29-20s-1w, rig abd. Phillips Pet.'s Galle 1, nw nw ne 11-21s-2w, dr 3275 ft. Darrah-Aurell's Decker 1, sw sw se 12-21s-2w, ur 6-in csg 3090 ft.

MEADE COUNTY—Pacific Mid-West's Rexford 1, ne se sw 8-30s-29w, sd 200 ft. Barnett's Adams 1, sw sw ne 22-34s-30w, sd 69 ft. Bryan & West's Brown 1, ne ne sw 5-33s-27w, spd and sd.

NESS COUNTY—Jones & Lane's Page Milling Co. 1, se se nw 36-18s-26w, sd 3270 ft. Marshall's Anderson 1, sw sw nw 23-16s-24w, spd and sd. Trojan's Moses 1, csw nw 10-18s-25w, sd 500 ft.

OTTAWA COUNTY—Babcock's Copeman 1, cnw ne 18-10s-2w, pits.

PHILLIPS COUNTY—Davidson's Elliff 1, se ne ne 35-5s-18w, sd 600 ft.

PRATT COUNTY—Atlantic's Rice 1, nw ne nw 11-28s-15w, lcn.

RENO COUNTY—Schneider's Kroecker 1, ne ne ne 12-22s-5w, dr 3977 ft. Carey's McPheeters 1, ne ne nw 22-26s-8w, ur 6-in csg 3772 ft. McCole's Mathews 1, sw nw nw 15-24s-10w, fsg 3325 ft. Amerada & Westgate-Greenland's Johns 1, se se se 25-22s-2w, dr 3690 ft. Fould's Ehnen 1, csl se se 33-23s-9w, ponds.

RICE COUNTY—Price' Gemeinhardt 1, ne ne se 18-18s-10w, pb to 3298 ft, Aw/3000 gals, p. 16 bbls oil and sw per day. Marylyn Oil's Vincent 1, nw nw ne 5-21s-10w, rig.

ROOKS COUNTY—Producer's Ham 1, sw sw nw 25-7s-19w, sd 330 ft. Graham's Fike 1, sw sw sw 9-9s-17w, co 3384 ft. Witt & Sheridan's Morrison 1, nw se sw 29-10s-17w, rig abd. Carter's Leist 1, sw sw sw 10-8s-17w, brr.

RUSSELL COUNTY—Parks' Gorham Est. 1, sw nw ne 19-15s-15w, dr 2835 ft. Jones' Kuhnle 1, se se nw 4-15s-12w, ur 8-in csg 2990 ft. Smith & Unruh's Stielow 1, nw nw nw 32-11s-14w, sd 2254 ft. Atlantic's Boxberger 1, ne se nw 10-15s-14w, dr 3022 ft. Central Pet.'s Furthmeyer 1, se se se 22-14s-15w, rig. Gulf's Punker 1, ce¼ nw sw 22-15s-12w, dr 2350 ft. Lauck & Moncrief's Miller 1, ne nw nw 29-13s-14w, dr 745 ft.

SEDGWICK COUNTY — Talbott's Downs Est. 1, se se nw 32-28s-2e, testing. Union O& R's Howell 1, sw sw sw 6-29s-1e, reset 10-in csg 2298 ft, woc. Hudson's Fulton 1, ne ne se 35-28s-1e, sd 1738 ft. McKnabb's Garrett 1, se sw sw 18-29s-1e, dr 3130 ft.

STAFFORD COUNTY—Terry & Feaster's Negley 1, sw sw ne 23-22s-12w, sd 3743 ft. Lindsay & Bailiere's Tiepermann 1, sw sw nw 32-22s-12w, dr 3663 ft. Knight's McNickle 1, se se ne 2-24s-11w, rot rig. Nat'l Ref. Co.'s Bonham 1, sw sw se 28-25s-12w, ur 7-in csg. Continental's Fair 1, cnl sw 12-25s-13w, circ at 4131 ft. Pryor & Lockhart's DeSalms 1, ne ne ne 3-25s-11w, dr 2645 ft. Cardinal's Fischer 1, sw nw sw 31-21s-12w, dr 500 ft. Continental & Phillips' Curtis 1, se se se 26-24s-13w, dr 1350 ft.

SUMNER COUNTY—Saco's Phipps 1, sw se ne 24-30s-1w, dr 1030 ft. Colonial's Miles 1, se ne ne 30-30s-4w, rot rig. Shawver, Pryor & Lockhart's McKowen 1, sw sw sw 18-32s-1w, dr 1960 ft. Murphy's Tate 1, se se nw 31-32s-2e, dr 130 ft. Hapenny's Evers 1, se se ne 27-31s-2e, sd 1519 ft.

TREGO COUNTY—Carlock's Kinzel 1, sw sw sw 9-13s-22w, rig abd. Manning & Martin's Lynd 1, nw nw sw 16-11s-21w, cor 3966 ft.

WOODSON COUNTY—Reeser's Weide 1, nw nw se 18-25s-14e, sd 1150 ft. London & Mendenhall's Slough 1, ne ne sw 9-24s-13e, td 1980 ft, abd. Union Oil & Royalties' Laidlow 1, cel nw sw 35-25s-15e, td 1404 ft, made ½ bbl oil per hr. Petty's Tipton 1, nw nw ne 31-25s-14e, mach. Craft's Pratt 1, nw nw sw 36-26s-15e, dr 1485 ft.

SOUTH LOUISIANA

ACADIA PARISH—Humble's Finch 1, South Crowley area, 22-10s-1e, dr shale 9373 ft.

AVOYELLES PARISH—G. C. Koch's Kelone 1, Marksville area, 21-2n-3e, dr shale 4600 ft.

BEAUREGARD PARISH—Republic's Lutcher Moore 1, Bancroft area, 10-6s-13w, dr shale 7998 ft.

CALCASIEU PARISH — Sun's Lutcher Moore 1, nw of Starks, 1-8s-13w, dr shale 5509 ft.

CAMERON PARISH — Humble's Miami Corp. 1-B, Little Cheniere area, 7-14s-6w, woc 8990 ft.

IBERIA PARISH—Texas Co.'s State 4, Fausse Point, 35-11s-8e, coring shale 9088 ft; same operator's Bayless & Jones 1, Jefferson Island, 58-12s-5e, coring shale 6500 ft; same operator's State 2-B, Vermilion Bay, 16s-5e, woc 7263 ft.

JEFFERSON PARISH—J. Szodomka's Carroll 1, n of New Orleans, 125-12s-11e, dr shale 2315 ft.

JEFFERSON DAVIS PARISH—Stanolind's Conoverl, w of Welsh, 30-9s-5w, dr shale 6709 ft. Union Sulphur's Calcasieu National Bank 2, Woodlawn area, 12-9s-6w, coring water sand 8560 ft.

LAFAYETTE PARISH—Continental's Foreman 1, s of Scott, 36-9s-3e, dr shale 9368 ft.

PLAQUEMINES PARISH — Gulf's Grand Prairie Levee District 1-A, Bird Island area, 6-20s-19e, dredging canal.

ST. BERNARD PARISH—Gulf's State RR 3, Lake Borgne, 6-12s-15e, woc 1600 ft.

ST. JAMES PARISH—Continental's Realty Operators 1, Hester or Convent prospect, 17-12s-5e, mim.

ST. LANDRY PARISH—Noxon & Toomb's Boagni 1, Opelousas area, 41-6s-4e, dr shale 5229 ft.

ST. MARTIN PARISH—Shell-Tide Water's Unit 1, w of Lake Verrett, 11-14s-12e, fsh 9889 ft.

TERREBONNE PARISH—Foh's Buckley 1, Dulac area, 77-19s-17e, coring shale 10,111 ft; same operator's State 1, LaTerre area, 41-19s-19e, dr shale 9229 ft.

VERMILION PARISH—Magnolia's Ferguson 1, West Gueydan prospect, 5-12s-2w, dr surface 990 ft.

NORTH LOUISIANA

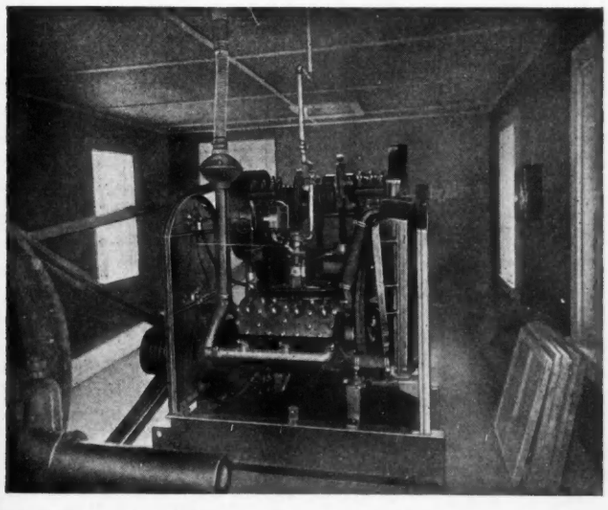
BIENVILLE PARISH—Gulf's Goodpine Oil Co. 1, se sw 25-14n-8w, elev 157 ft, massive anhydrite 5303-5420 ft, sd 9288 ft, hd gray sand, high water. DeSoto O&G Co.'s Wm. Ashley 3, c nw se 15-16n-10w, rog. Hunt-Seaboard's Hodge-Hunt 1, se nw 36-17n-6w, rog. Producers O&G Co.'s Lockett 1, ne ne 9-15n-10w, owdd, arr set csg & test so, td 2960 ft.

CADDO PARISH—Olson Drlg. Co. et al's Sharpe 1, c nw ne 10-18n-16w, elev 265 ft, base massive anhydrite 4687 ft, base stringer 4776 ft, showed est 50 to 100 bbls dist water, slugs of oil and 2½ mil ft gas, si for gauge, td 6061 ft.

CATAHOULA PARISH—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, 16 in csg 20 ft.

CLAIBORNE PARISH—Union Prod. Co. et al's Brownfield 2, c se nw 5-19n-5w, elev 235 ft, sdtr 9646 ft, old td 9964 ft; Coleman Unit 1, 30-20n-5w, dr 1110 ft. Weaver Oil Corp.'s Alex Edmonds 2, sw ne 16-20n-5w, dr 3510 ft. C. R. Schuster et al's Kilgore 1, ne se 28-21n-

HERE'S PROOF *of* DEPENDABILITY



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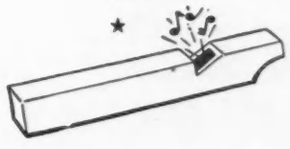

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5w, rur. Lyons and Neely's Fred Brazzell 1, c se nw 17-20n-4w, mim.

CONCORDIA PARISH—Edw. A. Addey's Pasternach 1, c nw sw 49-8n-9e, woc 480 ft.

DE SOTO PARISH—Clear Lake Oil Co.'s Woolums 1, nw nw 29-12n-12w, cored sand so, arr set csg td 2694 ft. La. Seaboard's Lawrence 1, sw ne 36-12n-14w, dr 1996 ft. S. S. Alexander's Stell 1, 5-12n-16w, 7 in csg 4463, ran electrical tests, arr set 5½ in csg 5500 ft, td 6002 ft. M. L. Stephens' M. E. Garrett 1, nw ne 10-11n-46w, lcn.

FRANKLIN PARISH—Southern Star Pet. Co.'s Grayson 2, sw ne 36-12n-6e, sd 1755 ft; Grayson 3, sw ne 36-12n-6e, lcn (300 ft, n of No. 2).

GRANT PARISH—C. L. Thompson's Woodard 1, ne sw 10-6n-3w, spd woc surf csg. C. R. Bowers et al's O. P. Harrison 1, ne sw 21-8n-5w, dk.

LINCOLN PARISH—E. T. Oakes, H. D. Easton et al's N. L. Griggs 1, c sw 36-18n-1w, elev 199 ft, formation shot twice at 5932-41 ft, acidized, sd, td 6260 ft.

MADISON PARISH—Continental Oil Co.'s Singer Mfg. Co. 1, c ne ne 3-15n-11e, mim.

MOREHOUSE PARISH—Hunter & Rowe's (formerly W. J. Furlong, Jr.) E. M. Clark 1, 10-20n-7e, elev 103 ft, top lime 6218 ft, sd 7022 ft.

NATCHITOCHES PARISH—Jos. E. Pop-

COMPREHENSIVE INDEX

of the

PUBLICATIONS OF
THE AMERICAN ASSOCIATION
of
PETROLEUM GEOLOGISTS
1917-1936

By

DAISY WINIFRED HEATH

A.A.P.G. PUBLICATIONS INDEXED

(20 Years of Geology of Oil and Gas)

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THE AMERICAN ASSOCIATION
OF PETROLEUM GEOLOGISTS

Box 979

Tulsa, Oklahoma, U.S.A.

kins' Peavy-Wilson Lbr. Co. 1, nwc 36-7n-9w, rur. W. T. Ryan et al's Lambert 1, nw nw 4-8n-9w, spd.

RAPIDES PARISH — Amerada's Weil 4, 53-1s-2e, so at 6703 ft, pb to 6703 ft, testing td 7045 ft.

RED RIVER PARISH—Glassel & Whitehurst's LaLong 1, ne nw ne 25-12n-11w, dr 3105 ft.

SABINE PARISH — W. L. McClanahan's Frost-Johnson 1, se ne sw 22-9n-13w, mim (5700 ft test). J. G. Suton Oil Co. et al's Sabine Lbr. Co. 1, se nw ne 23-7n-14w, 9⅝ in csg 2132 ft, tested 1200 ft, oil in 9 mim drill stem test, 3841-53 ft, 7 in csg 3840 ft, flowed oil & wash water several hours, killed drilled one ft deeper, acidized twice, swab dry sd 3856 ft (Washita). Kirk-Greenway et al's Whittney Corp. 1, ne ne 8-9n-13w, owdd td 8510 ft.

TENSAS PARISH — H. B. Schumacher's Mounds Land Co. 4, 39-11n-12e, spd woc serf csg.

UNION PARISH—Joe Modisett et al's Frost Lbr. Co. 1, ne sw 14-21n-1e, elev 188 ft, top Travis Peak 4050 ft, top lower Marine 6161 ft, dr 8445 ft. Standard of La.'s Frost Lbr. Co. 1, c sw sw 13-23n-2w, lcn.

WEBSTER PARISH — Magnolia's Frank Sexton 1, c sw ne 32-23n-9w, elev 225 ft, 13⅜ in csg 838 ft, top first anhydrite stringer 4175 ft, top massive anhydrite 4348 ft, top Travis Peak 5701 ft, 9⅝ in csg 6838 ft, top lower Marine 7605 ft, dr 8720 ft. W. M. Chambers et al's Thomas 1, se se 11-22n-11w, dk (formerly carried Fohs Oil Co.).

WINN PARISH—G. W. Ziegen's La. Cent. Lbr. Co. 13, 4-13n-1e, woc surf csg 63 ft.

MISSISSIPPI

CALHOUN COUNTY—S. & O. Properties, Inc.'s G. C. Cooner 1, se ne 12-24n-8e, no report.

CLAIBORNE COUNTY—Claiborne County Dev. Co.'s Ruth Hayden 1, s½ se 55-11n-2e, elev 199 ft, top Sparta 1802 ft, sd 2512 ft sand (Sparta).

GEORGE COUNTY—Cleve Love et al's J. J. Newman Lbr. Co. 2, c sw 9-1s-8w, elev 111 ft, 10 in csg 1374 ft, woc 1376 ft, top of Het.

HINDS COUNTY—Cleve Love et al's Montgomery 1, sw se se 28-6n-4w, lcn. S. F. Johnson 1, ne se 29-6n-1w, elev 343 ft, top black shale 3040 ft, top chalk 3097 ft, top Eutaw 3617 ft, coring 3676 ft sand. Progressive Realty Co. 1, se sw 35-6n-4w, spd arr set 13⅜ in csg 400 ft (8500 ft test). Black River Oil Co.'s Federal Land Bank 1, ne ne 11-15n-5e, elev 146 ft, top chalk 6961 ft, junked abn td 7584 ft.

JONES COUNTY—Snow-Black Pet. Co.'s Cranford 1, s½ nw 29-7n-12w, ran formation tester no show, arr deepen td 4280 ft (Wilcox).

LAMAR COUNTY — Southern Miss. Pet. Corp.'s Morris 1, nw se 4-2n-14w, topped Het at 1138 ft 10 in csg at 1144 ft, dr 1160 ft.

PERRY COUNTY—Phillips Pet. Co.'s J. J. Newman Lbr. Co. 1, se se sw 21-2n-10w, elev 210 ft, temp abn, td 8434 ft.

SIMPSON COUNTY—Goodwill O&G Co.'s Berry 1, se sw 33-2n-4e, coring black shale and sand 2338 ft.

YALABOUSHA COUNTY—Acme Holding Co.'s S. D. Boyle 1, nw nw 33-25s-7e, elev 415 ft, sd 810 ft, Midway.

MICHIGAN

ALLEGAN COUNTY—Wayland Syndicate's Kline 1, 10-3n-11w, dr 98 ft.

BARRY COUNTY—Collin & Soper's Simmons 1, 3-4n-10w, sd 790 ft.

BAY COUNTY—Michi-Oil Co.'s Wampler 1, 6-16n-3e, rig. C. W. Teater's Goodman 1, 28-18n-3e, dd 2957 ft, so 3105-40 ft, water 3154 ft, pb to 3140 ft, testing. Gulf Ref. Co.'s Swantck 1, 35-15n-4e, dr 2660 ft.

CLARE COUNTY—Gulf Ref. Co.'s Doherty 1, 25-17n-4w, dr 1615 ft. Big Basin Oil Co.'s Murphey 1, 26-17n-3w, dr 3200 ft.

GLADWIN COUNTY—C. W. Teater's Olson 1, 20-20n-2e, driving 10 in csg 390 ft. McClanahan Oil Co.'s Sharp 1, 9-19n-2w, dr 3400 ft.

INGHAM COUNTY—Darke Brothers' O'Sullivan 1, 28-2n-1w, dr 100 ft.

ISABELLA COUNTY—Bell & Marks, Inc.'s Fox 1, 5-13n-5w, dr 1900 ft. J. V. Wicklund Dev.'s Lawens 4, 24-15n-5w, Dundee 3776 ft, sd 3793 ft.

KENT COUNTY—Gulf Oil Co.'s Baker 1, 35-9n-11w, dr 385 ft. James Barton's Oudermeulen 1, 29-5n-12w, dr 2190 ft.

MECOSTA COUNTY—Mitchell Oil Co.'s Blodgett 1, 22-13n-10w, dr 1700 ft. Jetter Drilling Co.'s Deakins 1, 28-13n-7w, sd 1150 ft. Frank Hebard's Weeks 1, 32-15n-7w, dr 1600 ft.

MIDLAND COUNTY—Pure Oil Co.'s State-Jerome A-1, 3-15n-1w, dr 2900 ft. Wicklund Dev. Co.'s Royalty Co. 3, 24-16n-2w, Dundee 3816 ft, dr 3964 ft.

MISSAUKEE COUNTY—Moser Oil Co.'s Scherenhelm 1, 36-23n-7w, mim.

MONTCALM COUNTY — H. L. Gentry's Christensen 1, 29-11n-8w, Traverse 2757 ft, td 2837 ft, testing so, to acidize.

NEWAYGO COUNTY — Muskegon Dev. Co.'s Carey 1, 35-14n-11w, dr 390 ft. Gulf Ref. Co.'s Walker 1, 25-13n-13w, dr 578 ft.

TUSCOLA COUNTY—Norton & Kramer's Sharp 1, 30-14n-8e, csg 6 in, 1600 ft.

MONTANA

JUDITH BASIN COUNTY — Fletcher P. Hunt's Hobson 3, nw se ne 30-14n-15e, dr 1870 ft.

LEWIS & CLARK COUNTY—Wm. Hanlon's 1, cne nw 11-18n-5w, dr 2461 ft.

NEBRASKA

SIOUX COUNTY—Union Oil Co. of California's Cook 1, cse se se 15-28n-55w, let rotary contract this week.

OKLAHOMA

ADAIR COUNTY—Maddox' Penn Mutual Life Ins. Co. 1, cs½ ne nw 5-16n-24e, sd 520 ft.

ATOKA COUNTY — Sheldon & Gardner Pet.'s Lee 1, ne nw sw 2-4s-10e, dr 2463 ft. Stanolind & Amerada's Ridgway 1, nw ne ne 24-3s-9e, td 331 ft, testing.

BECKHAM COUNTY—Mid-American's Biscoe 1-A, sw sw sw 28-8n-22w, sdo 2705 ft.

CARTER COUNTY—Lloyd & Noble's Revelle 1, sw sw se 21-3s-2w, td 4028 ft, sdo. The Texas Co.'s Cathay 1 "B", se ne ne 6-5s-1w, dr 5014 ft.

CLEVELAND COUNTY — Hollenbach's Mantooth 1, nw nw nw 24-6n-1e, rig. Delaney's Bugher 1, se se sw 12-7n-2w, dr 4185 ft.

CHOCTAW COUNTY—Chapman & Lowe's Hallum 1, nw nw ne 4-7s-20e, td 815 ft, abd. Ross' Hardy 1, se se nw 21-7s-15e, spd.

COMANCHE COUNTY—Wolf's Costinus 1, sw sw se 30-4n-11w, spd. Scott's Kuntz 1-A, se ne se 27-4n-11w, sd 2800 ft. Roach's Green 1-A, se se sw 2-1n-13w, sd 760 ft.

COTTON COUNTY—W. & P. Oil's Worsham 1, nw nw se 15-4s-10w, lcn.

CREEK COUNTY—Mosier's Holcomb 1, se sw ne 19-18n-1e, sd 3018 ft.

GARFIELD COUNTY — Waukomis Oil's Clark 1-A, nw nw nw 34-21n-6w, td 7336 ft, may re-acidize.

GARVIN COUNTY—Edwards' Clark 1, ne ne ne 16-3n-3e, rust, dr cem at 1891 ft.

GRADY COUNTY—Gulf's Thomas 1, sw nw nw 14-4n-5w, dr 11,390 ft. Doyle's Hufnine 1, nw nw se 30-5n-8w, der.

GREER COUNTY—Medlin's Broudie 1, nw nw nw 5-6n-20w, sd 90 ft. McDonald's Fite 1, se se nw 34-7n-21w, sd 1114 ft. Gauntt & Baker's Parks 1, nw nw sw 29-7n-20w, sd 720 ft. Everitt's Graumann 1, ne nw nw 11-5n-21w, ur 6⅝ in csg at 360 ft.

HUGHES COUNTY—Phillips Pet.'s Beeker 1, ne nw sw 8-5n-10e, pb to 5660 ft, testing. Doup's Bank 1, ne ne nw 7-7n-9e, fsg 335 ft. Rives' Hawthorne 1, sw sw se 19-7n-10e, lcn. Phillaine's Morrison 1, se se sw 13-9n-10e, dr 2135 ft. Amerada & Stanolind's Preame 1, nw nw se 29-9n-9e, td 4268½ ft, to pb to Cromwell and test. Moore's Hunter 1, ne ne nw 30-4n-9e, dr 3570 ft. Marbett Oil's Breeding 1, ne sw ne 12-7n-8e, co to 1097 ft and sd. Amerada and Stanolind's Martin 1, nw ne ne 6-9n-9e, td 3107 ft, may abd. Troup & Strickland's Brown 1, nw sw ne 32-6n-8e, sd 660 ft.

JEFFERSON COUNTY—Weir's Hayes 1, se se nw 23-7s-7w, der.

JOHNSTON COUNTY—Patton's McCrummens 1, sw sw ne 16-1s-6e, sd 1380 ft. Shelton's Chapman 1, cnw nw 26-4s-6e, td 3176 ft, pb to 2204 ft, bail and co at 1000 ft.

KAY COUNTY—Shaffer's McKee 1, ne ne nw 20-28n-1w, sd 2500 ft. Shaffer's Rudolph 1, ne ne sw 27-29n-1w, cel. Nye's Willin 1, se se sw 24-27n-4e, c&p. Pierce's Hannan 1, se se se 26-28n-2e, sd 2000 ft.

KIOWA COUNTY—Hughes & Reese' Fultz 1, se se se 10-6n-18w, sd 1238 ft. Anderson Prichard's Hancock 1, se se nw 23-6n-15e, dr 705 ft.

LINCOLN COUNTY—Wilcox' Royer 1, se

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se ne 18-14n-6e, sdo 3372 ft. Stanolind & Amerada's Strader 1, nw nw ne 8-13n-3e, td 5277 ft, testing. Wilcox' Evans 1, sw sw nw 21-14n-6e, dr 2520 ft.

LOGAN COUNTY—The Texas Co.'s Roper 1, cw¼ sw se 22-15n-1e, td 5542 ft, sdo. Carter's Lydick 1, ce½ nw ne 23-15n-4w, sd 3672 ft. Sinclair Prairie's Crews 1, sw sw ne 27-16n-1e, br.

LOVE COUNTY — Sinclair Prairie's Peabody 1, ne ne ne 35-6s-2w, dr 4545 ft.

MARSHALL COUNTY—Robb's Vittitoe 1, cne se 11-5s-4e (owdd—otd 5461 ft), co at 2550 ft.

MURRAY COUNTY—Owens' Gryer 1, ne se ne 34-1s-3e, dr 2685 ft.

MUSKOGEE COUNTY—Cusack's Elliott 1, cnl nw sw 20-15n-20e, rog. Cusack's Fee 1, ne sw se 20-15n-20e, spd 65 ft. Clants' Jennings 1, nw nw ne 8-13n-19e, mach, sd.

OKFUSKEE COUNTY—Burke-Greis' Capps 1, se se se 7-13n-7e, td 3227 ft. Alma Oil's Martin 1, sw sw sw 4-12n-7e, rig.

OKMULGEE COUNTY — Bryan Pet.'s Thompson 1, cse ne ne 8-15n-11e, hfw 2100 ft.

OSAGE COUNTY—Norbla's Osage 1, se se se 18-25n-7e, dr 820 ft. Chevalier-Simon's Osage 1, nw nw sw 33-27n-5e, dr 1675 ft.

PAWNEE COUNTY—Ross & Patterson's Morhain Heirs 1, ne ne nw 33-20n-7e, rig.

PAYNE COUNTY—Maradun Oil's Moore 1, se sw nw 17-18n-1e, dr 4905 ft. Kemp's Rafferty 1, se se ne 6-18n-5e, dr 3505 ft. Sun Oil's Scafe 1, se se ne 12-18n-1e, dr 595 ft.

PONTOTOC COUNTY—Union Dev. Co.'s Abbott 1, sw nw ne 34-3n-6e, sd 3320 ft. Lee's Weatherley 1, nw se nw 24-1n-7e, sd 700 ft. Cowley's McCormich 1, sw sw se 29-2n-4e, sd 275 ft. Delaney's Perrine 1, se sw se se 12-5n-4e, co to 2610 ft, swb 60 bbls oil 7 hrs, to pop.

POTTAWATOMIE COUNTY — Hall & O'Mara's Show 1, ne ne se 32-6n-5e, td 3346 ft, abd. Davis' Jones 1, nw ne sw 34-6n-5e, td 2314 ft; to pop. McLenen's Fidler 1, ne ne nw 9-5n-5e, mim. Mid-Continent's Smith 1, ne se sw 31-7n-4e, spd. Alma Oil's Smith 1, se se ne 32-7n-5e, testing. Farmers Mutual's School Land 1, se se nw 16-5n-5e, pits.

ROGER MILLS COUNTY—Central Pet.'s Lambe 1, se se se 27-14n-21w, rig corners and sd.

SEMINOLE COUNTY—Woodson & Maradun's Gilliland 1, se se sw 24-11n-7e, td 4295 ft. Pine's Wright 1-A, se se ne 16-6n-6e, set 7-in csg 3509 ft, rust. Villines' Swan 1, nw ne nw 26-7n-5e, set 7-in csg 2977 ft, rust. Summitt Drlg.'s Wass 1, se ne ne 30-8n-7e, td 2160 ft. Delaney's Swan 1, se sw sw 18-6n-6e, spd. Greer's Swan 1, nw ne ne 25-7n-5e, c&p.

STEPHENS COUNTY—Coline Oil's Johnson 1, sw se ne 1-2n-8w, td 9086 ft, so&g. Helmerich & Payne's Moursberger 1, cs½ sw se 29-2n-8w, td 5512 ft, sdo.

TEXAS COUNTY—Hagey's Peck 1, cne¼ 6-1n-13ecm, sd 2842 ft. Hardendorf & Kuhn's Wiggin 1, cnw¼ 1-2n-14ecm, 30,000,000 cf gas, 2745-53 ft, si. Hardendorf & Kuhn's Wiggin 2, cne¼ 2-2n-14ecm, lcn.

TILLMAN COUNTY—Gibson-Jennings' Burleson 1, se se sw 35-2s-19w, td 3303 ft, abd. Grimes' Hall 1, sw ne sw 12-3s-19w, dr 1406 ft. Russell & Day's Hasley 1, nw ne nw 4-1s-19w, der.

TULSA COUNTY—North's Leibig 1, ne nw nw 31-19n-14e, td 1944 ft, pb to 1870 ft, si for gas well.

WASHITA COUNTY—McWhirter's Fee 1, nw sw sw 34-8n-19w, dr 2120 ft.

WEST TEXAS

(This report confined to south and east portion of the Permian basin and all Ordovician and Delaware projects).

BREWSTER COUNTY—Floyd C. Dodson-B. A. Duffey et al's Texas American Synd. 1-a, near c ne ne GH&SA sec 66, blk 10, elev 4228 ft, top Delaware shale 2297 ft, top Simpson 6733 ft, dr by junk, td 7750 ft. G. H. Storey et al's J. P. Wilson 1, c se nw T & St. L. sec 3, blk 212, elev 3609 ft, sd 2545 ft. H. D. Wilcox et al's W. H. Kokernot 1, nw sw sec 12, blk C, J. V. Massey sur, dr 1225 ft.

CONCHO COUNTY—Barnett Oil Developments, Inc.'s D. E. Sims 1, Carl Thiele sur No. 58, Ordovician test, elev 1674 ft, sd 162 ft.

COKE COUNTY—Barnett Pet. Corp.'s J. E. Mims 1, sec T&P sec 39, blk W, elev 2352 ft, trace oil 1640 ft, pay 1805-60 ft, est. 1 bbl oil daily, sd for acid. H. E. Ogden et al's E. C. Rawlings 1, swc H&TC sec 391, blk 1-A, sd 2800 ft.

CRANE COUNTY—Gulf Oil Corp.'s W. N. Waddell et al 7, c sw se PSL sec 4, blk B-27, Ordovician test, elev 2537 ft, base Permian and top Simpson 5828 ft, top Ellenberger 6001 ft, pay 6002-12 ft, flowed 3656 bbls 45 deg. oil pot'l nat'l; Waddell et al 8, c nw ne sec 4, rur. Humble et al's J. B. Tubb 1, nwc PSL sec 14, blk 32, lcn. Loffland Bros. Co.'s Reidland 1, sec PSL sec 2, blk B-27, Ordovician test, elev 2570 ft, td 5434 ft, dr by stem. Magnolia's University 1-16, nwc sec 16, blk 30, elev 2634 ft, top anhydrite 1205 ft, top Yates 2225 ft, dr 2910 ft.

CROCKETT COUNTY—Rockmaker et al's A. C. Hoover 1, nec sw B&B sec 1, blk FF, lcn. W. L. Bradley et al's A. C. Hoover 1, sw sw nw GC&SF sec 1, blk 1, elev 2249 ft, dr 615 ft. L. H. Choate-F. T. Hogan's University-Gulf 1, se ne sw sec 17, blk 14, elev 2371 ft, top pay 1457 ft, tests 2/bailer oil per hr, dr 1505 ft. R. H. Henderson et al's Barnett-Hoover 1, nec S-240-ac, e¼ GC&SF sec 5, blk 1, dr 615 ft. Short & Gillette's A. C. Hoover 1, se se nw GC&SF sec 3, blk 1, mim. Pitzer & West's A. C. Hoover 2, se ne se B&B sec 2, blk FF, sp and sd. Sindorf & Stone's A. C. Hoover 1, nwc GC&SF sec 4 (south), elev 2267 ft, top lime 1600 ft, dry and abd 2008 ft. Stewart & Cormas' A. C. Hoover 1, nw sw B&B sec 1, blk FF, elev 2380 ft, top salt 475 ft, top lime 1747 ft, shot 140 qts in pay 1885-1931 ft, pumped 92 bbls initial. W. F. Yates et al's A. C. Hoover 1, ne ne ne GC&SF sec 6, blk 1, sp and sd.

CULBERSON COUNTY — Grisham-Hunter Corp.'s C. M. Caldwell 1, near se sw PSL sec 14, blk 42, elev 3820 ft, dry and abd 550 ft. Harry J. W. Niehaus et al's C. M. Caldwell 1, se nw PSL sec 15, blk 109, fsh 595 ft.

ECTOR COUNTY—Sinclair Prairie-York & Harper, Inc.'s Paul Moss 1-A nw nw se T&P sec 40, blk 44, T-2-S, elev 3089 ft, top anhydrite 1537 ft, top salt 1568 to 2525 ft, top Yates 2650 ft, dr 3300 ft. Lou G. Stogner et al's T. G. Hendrick-Humble 1, ne nw T&P sec 4, blk 43, elev 3010 ft, dr 1070 ft.

EL PASO COUNTY—Tri-State Oil Co.'s Chas. & L. M. Kinkel 1, ne cor sec 237, S. F. No. 7232, elev 3977 ft, run 4½-in csg, td 3571 ft.

FISHER COUNTY—Bond Oil Corp.'s N. Bertram 1, sec sw labor 43, league 323, Bastrop C.S.L. sur, elev 1852 ft, base Sedwick 2764 ft, top Dothan 2800 ft, top Noodle Creek lime 2900 ft, hfw 3314-23 ft, td 3606 ft, pb to test upper lime. S. & D. Daube & Forest Dev. Corp.'s A. C. Bennett 1, c ne ne H&TC sec 51, blk 2, lcn. Owens-Snebold Oil Corp.-A. C. Verner's J. H. Milsap 1, swc 2½ ne H&TC sec 61, blk 1, set cas 525 ft. Dibrell et al's Stribling 1, c se se H&TC sec 110, blk 3, lcn.

TOM GREEN COUNTY—Humble's Lewis-Wardlaw 1, near c ne se H&TC sec 5, blk 17, Ordovician test, elev 2142 ft, San Angelo lime 340-630 ft, top Ellenberger 6989 ft, dst 6994-7180 ft, show gas no water, dr 7180 ft. Southern Cross Oil Co.'s J. W. Wilson-Upton 1, c nw AB&M sec 30, blk A, lcn. M. R. Stuard et al's Frank Garlitz 1, J. H. Mueller sur No. 2201, Certf. No. 760, co 635 ft.

GLASSCOCK COUNTY—O. B. Greathouse et al's Burns 1, se se nw W&NW sec 184, blk 29, lcn.

HOWARD COUNTY—H. L. Lockhart et al's Heusinger-Scott 1, sec W&NW sec 67, blk 29, elev 2415 ft, pb fr 2925 to 2875 ft, shot 940 qts 2700-2850 ft, testing. Moore Bros. Corp.'s W. P. Edwards 1, near se ne nw T&P sec 44, blk 30, T-1-S, elev 2303 ft, dr 1380 ft. Roy A. Westbrook et al's Great West Ref. Co. 1, near nec T&P sec 49, blk 32, T-1-N, elev 2469 ft, gauged 368,000,000 ft nitrogen and oxygen at 1460 ft, dry and abd 3855 ft. The Texas Co.'s H. H. Wilkinson 1, near ne nw nw T&P sec 32, blk 34, T-1-N, dr 1290 ft.

HUDSPETH COUNTY—Haymon Krupp Oil & Land Co.'s K. S. Briggs 1, nwc T&P sec 24, blk 73, Tsp. 7, ur 5758 ft; S. J. Thaxton 1, near sec ne se T&P sec 34, blk 74, Tsp. 6, fsh cas 4175 ft.

LOVING COUNTY—Argo Oil Corp.'s T. P. Land Trust 1, se se sw T&P sec 17, blk 55, Tsp 1, mim. Shell's T. P. Land Trust 1, sw sw se T&P sec 17, blk 55, Tsp. 1, lcn.

MENARD COUNTY—G. A. Clements et al's

Your Boy Will Be

DEAD OR CRIPPLED

Your boy will be dead or crippled for life, and your money won't be worth as much as Indian wampum, unless you and I do something to stop impending war.

The politicians are now determined to plunge us into a war of aggression. Your boy and mine will be conscripted and sent to Europe to be killed or mutilated unless we do something about it.

DON'T be a peace-time slacker. Let's do our fighting now, while we have something left for which to fight. In other words, let's refuse to be putty in the hands of the few who despise our intelligence.

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A. H. Murchison 1, swc sec 80, Boeddecker sur, elev 2073 ft, top Canyon 612 ft, top Strawn 1170 ft, dry and abd 1320 ft. C. D. Hagerty et al's Callan 1, swc e½ of J. M. Franz sur, sec 36, elev 2026 ft, set cas 430 ft. Hartzell-Nawn & O'Hara Synd.'s Wilhelm 1, sec se sec 24, Indianola Ry. sur, A-1795, mim.

NOLAN COUNTY—C. Ed. Hyde et al's E. H. Withers 1, c sw T&P sec 65, blk 21, sp and sd.

PECOS COUNTY—Aero Gas & Ref. Co.'s Iowa Realty Trust 1, e cor H&TC sec 13, blk 10, elev 2511 ft, dry and abd in salt water 1510-20 ft. Butler & Daniels' Lowery 1, nec n½ H&GN sec 80, blk 8, top anhydrite 510 ft, salt series 800-1790 ft, top lime 1900 ft, bails 6 bbls per hr 2116 ft. Cardinal Oil Co.'s White-Baker 1-36, se se sw T. C. Ry. sec 36, blk Z, pay 1618-26 ft, 1 bbl 29.4 gravity oil per hr, dr 1735 ft. Ed. Falvey et al's Joe C. Trees 1, sw nw nw H&GN sec 63, blk 8, fsh 2055 ft. Magnolia and Tex-Mex Pet. Corp.'s J. H. McKee 1-a, near nw nw sw H&GN sec 24, blk 9, elev 2385 ft (jkd twice), top Simpson 4775 ft, tested small volume 43 deg. oil and gas at 5294 ft, td 5444 ft, sd for rotary. E. R. Minshell et al's Haynie 1, sw sw nw T. & St. L. sec 28, blk 146, machine. Pure Oil Co.'s Caldwell 1, c nw T&P sec 47, blk 50, Tsp. 10, lcn for deep test. H. H. Sides et al's Blackstone-Slaughter 1, sec T. & St. L. sec 25, blk 130, dr by tools 355 ft. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se¼ GC&SF sec 53, blk D, Ordovician test, elev 3938 ft, minor o&g showings before run 5½-in pipe at 7028 ft to test at 7128 ft, fsh tools 7212 ft. Trans-Pecos Oil Co.'s F. M. Gallaher 1, ne ne nw T&P sec 9, blk 51, Tsp. 10, dr 1945 ft; Popham Land & Cattle Co. 1-B, s½ GH&SA sec 235, blk 11 (3rd. hole), ur 2025 ft. H. F. Wilcox O&G Co.'s Cerf 1, near c se sw T. & St. L. sec 27, blk 130, elev 3534 ft, dr 3095 ft.

PRESIDIO COUNTY — Brite Production Co.'s L. C. Brite 1, ne¼ GH&SA sec 113, blk 12, tested 2½ bbls oil daily at 4267-75 ft, sd 4420 ft.

REEVES COUNTY—Barnett Pet. Corp.-J. C. Hill & Conoco's Ely-Healy 1, c nw PSL sec 38, blk 71, Delaware test, elev 3166 ft, junked 4370 ft. Grisham-Hunter Corp.'s Geo. Daniel 1, c ne T&P sec 40, blk 58, Tsp. 6, dr 1035 ft. C. R. Mallison & Richardson Oils, Inc.'s E. M. Brown-State 1, near c sw H&GN sec 62, blk 4, elev 2686 ft, base salt 4060 ft, top Delaware lime 4220 ft, top sand 4262 ft, dry and abd 4638 ft. Ohio Oil Co.'s Popham Land & Cattle Co. 1, nw T&P sec 18, blk 54, Tsp. 10, elev 3623 ft, dr 2305 ft.

RUNNELS COUNTY—F. G. Beaudoin & Rex Cannon's H. Giesecke 1, Jas. Hughes sur A-227, lcn; J. W. Barr 1, C. Montez sur No. 230, lcn. J. W. McLean et al's E. H. Plueger 1, Asa Clark sur, A-506, sp and sd. Homer Price & A. E. Koener's J. C. Beddo 1, subdiv No. 51, D. Diaz sur, elev 1700 ft, sd 3453 ft.

SCHLEICHER COUNTY—John W. Cooper et al's Bert Page 2, c ne sw GH&SA sec 40, blk L, elev 2289 ft, Ordovician test, sd 5004 ft. H. B. Opp et al's J. T. Jackson 1, nw ne TC sec 41, blk LL, sp and sd. Tex-Tor Oil Corp.'s Judkins-Spencer 1, c sw A&B sec 33, blk A, elev 2235 ft, top Ellenberger 5547 ft, dry and abd in sul w 6450 ft.

SCURRY COUNTY—Robinson Drl. Co.'s A. C. Martin 1, c nw sw H&TC sec 147, blk 97, elev 2234 ft, top lime 1514 ft, pb fr 3515 to 2500 ft, shot and acidized, sd. T. G. Shaw Oil Corp.'s First Nat'l Bank (Ft. Worth) 1, c nw H&TC sec 112, blk 97, elev 2214 ft, top lime 1568 ft, jkd and abd 3369 ft. P. G. Moran et al's F. W. Hardee 1, nwc H&TC sec 99, blk 97, dr 275 ft.

STERLING COUNTY—John W. Sward et al's T. G. Brennand 1, se se ne H&TC sec 107, blk 2, elev 2535 ft, top anhydrite 918 ft, dr 975 ft. Loffland Bros. Co.-Moore Bros. Corp.'s D. D. Parramore 1, sw sw se H&TC sec 23, blk 2, lcn.

STONEWALL COUNTY—Gen'l Crude Oil Co.'s J. D. Smith 1, sec H&TC sec 371, blk 2, 13 mi n Rotan, elev 1958 ft, base red beds 2115 dr, trace gas 3000 ft, hfw 3370-3415 ft, dr 3460 ft. Bert Fields et al's Pierson 1, J. M. Lee sur, sp and sd. A. G. Swanson & Parriott's H. T. Carlisle 1, sw se sw H&TC sec 293, blk D, rust, td 3345 ft.

SUTTON COUNTY—A. A. Basse & S. J. Sackett's W. A. Miers 1, c nw TW&NG sec 54, blk 14, sp and sd.

TERRELL COUNTY—R. A. Basurto et al's J. H. Phelps-Bates 1, near sec nw sec 5, G. W. Turley sur A-4, Ordovician test, elev 2185 ft, sd 5600 ft. D. & S. Oil Co.'s Sam Bell 1, near swc nw sw EL&RR sec 68, blk D-7, sd 960 ft.

VAL VERDE COUNTY—J. F. Carter et al's J. Sellers 1, sw sw I&GN sec 34, blk "A", lcn.

UPTON COUNTY—W. D. Riser et al's King 1, nwc n½ MK&T sec 8, blk 3, sd 730 ft. W. M. Holland et al's Henry Halff 1, se nw sw sec 6, blk A, CCSD&RGNG sur, elev 2699 ft, top anhydrite 1290 ft, top salt 1360 ft, top Yates 2220 ft, show gas with salt water 2581-85 ft, fsh 2610 ft.

WARD COUNTY—J. E. Fitz-Patrick, Frank T. Pickrell et al's H. B. Carr 1, c w¼ n¼ H&TC sec 125, blk 34, Delaware test, elev 2645 ft, top Rustler 705 ft, sd 1115 ft; F. I. Dyer 1, w¼ n½ H&TC sec 135, blk 34, Delaware test, elev 2709 ft, top Rustler 695 ft, sd 2500 ft. L. B. Hoss & F. J. Downey's R. Avery-Atlantic 1, s¼ H&TC sec 36, blk 1, elev 2407 ft, top anhydrite 745 ft, top salt 820 ft, top lime 1717 ft, dr 1880 ft. Magnolia's Geo. Sealy 2-46, ne sw ne G&MMB&A sec 46, blk F, elev 2717 ft, top lime 2658 ft, shot 60 qts 2737-58 ft, td 2856 ft, flowed 151 bbls initial; Sealy 3-46, sw ne ne sec 46, rig. R. G. Patillo et al's Blair-Republic 1, n cor H&TC sec 5, blk 32, top anhydrite 455 ft, top salt 781 ft, 500 ft oih, dr 3638 ft. States Oil Corp. et al's Spencer 1-a, near e cor H&TC sec 41, blk 34, elev 2610 ft, top anhydrite 1492 ft, top Yates 2490 ft, test 15 bbls salt w daily 2771-75 ft.

EAST TEXAS BORDER COUNTIES

CASS COUNTY—G. H. Chamblee's White & Walker Lbr. Co. 1, J. J. Potter sur, (280 ac) sd 6203 ft contract depth.

HARRISON COUNTY—Ark. Fuel Oil Co.'s C. M. Abmey 1, Eason Little sur, co hole to deepen, td 4820 ft (Glen Rose).

MARION COUNTY — Tom Bell's Carrie Moseley 1, claim so 2513 ft, sd for csg td 2524 ft.

PANOLA COUNTY—Preston et al's Rushing 1, Mannan Smith sur, sd with fsg job 3276 ft. Texas Co.'s Claude Adams 1, Thos. Cox sur, 13⅜ in csg 579 ft, 9⅝ in csg 5940 ft, dr 6870 ft.

SHELBY COUNTY—C. L. Cope's Pickering Lbr. Co. 1, English sur, rur.

SOUTH TEXAS

CORPUS CHRISTI DISTRICT

BEE COUNTY—Doutherty's Beck 1, blk 8, subd 4, sd 3721 ft. Luling's Page 1, Hadley sur, ran electrical formation tester, no details, td 3900 ft.

DE WITT COUNTY—Howeth's Fuhrken 1, Walton sur, dr 3000 ft.

GOLIAD COUNTY—DeArman & Winward's Drier 1, sur 7, set whipstock to sdtr, cut out ds to 1300 ft, depth 5535 ft. Goliad's Lutenbacher 3, blk 25, reinstated, cut window at 5227-37 ft in 7 in csg at 5352 ft, dr to 5427 ft, set 5½ in liner at 5427 ft, making production test of Pettus sand 5356-66 ft.

HIDALGO COUNTY—Gulf States' Cardenas 1, sh 156, dr 6940 ft. Morton's Guerra 1-A, por 41, dr 1975 ft. Smith's Fairbanks & Young 1, por 46, cor 2431 ft.

JACKSON COUNTY—Harrison's Wearden 1, Williams sur, dr 5150 ft.

JIM WELLS COUNTY—Callaway's Garcia

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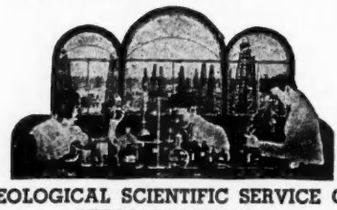

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1, sur 62, dst around 5670 ft, recovered 900 ft wtr w/o & g show, 15 min, woo. Graham's Martens 1, blk 11, Welhausen subd, dk. Gilcrease's Adams 1, sur 5, ru. Heard & Heard's Adams 1, sur 22, lcn. Howell's Lindsay & Reed 1, La Vaca gr, dr 3650 ft. Magnolia's Seeligson 8, Los Jaboncillos gr, drld plugs, 7 in csg set 6575 ft, td 6593 ft. Pressnal & Mosser's Mortgage 1, La Vaca gr, dr below 2860 ft. Red Bank's Adams 1, blk 40, sp.

LIVE OAK COUNTY—Dail's Herring 1, Hays sur, dr below 500 ft. H. & H.'s Nichols 2, Henry sur, drilling below 1000 ft, missed 950 ft snd, top Jackson 490 ft, good gas show. Martin's Great Southern Life 1, sec 25, changing rigs, td 965 ft. Richardson & Karotkin's Poppe 1, sec 148, sd woo, ran electrical formation tester, indicated snd in lower Yegua at 2900-07 ft, took side wall cores, no shows. Union's Terrell 1, O'Boyles sur, top Pettus 1470 ft, dr below 1650 ft. Wilson's Great American Life 1, sec 47, running third dst of snd 1860-76 ft, others showed wtr, td 1967 ft.

NUECES COUNTY—Coastline's State 1, tr 314, completed island, ready to mim. Conroe's Morgan 1, sur 413, dr below 6100 ft, electrical formation tester and side-wall cores showed good oil show 5620-30 ft. Corpus Christi's Howington 1, sur 156, dr sdtr hole 5250 ft, otd 5385 ft. Renwar's Kenedy A-1, sur 420, dr 5300 ft. Kenedy B-1, sp. Seaboard's Luby 7, sec 1, sh 2, dr 6000 ft. Southern Minerals' French 1, cor below 5717 ft. Texon's Horne 1, Palo Alto gr, wo storage, perf 6275-92 ft, td 6323 ft. Union's Brown 1, sec 87, dr around 5000 ft; Rivers 4-A, reperforated 6682-6700 ft, testing, td 7202 ft.

REFUGIO COUNTY — Hogan's Kelly 2, Power sur, dr below 5900 ft. Porter's Lambert 1, Power & Hewitson sur, dr around 4000 ft.

SAN PATRICIO COUNTY — Humble's Smith & Talbert 1, sec 37, dr below 4500 ft.

VICTORIA COUNTY—Superior & Gillespie's Carroll 1, Johnson sur, dr 4600 ft.

WILLACY COUNTY—Magnolia's Armendiaz 1, Carricitos gr, td 9641 ft, setting protection csg, will dd. Sal Vieja's Garcia 2, sh 56, testing, td 7908 ft in snd.

LAREDO DISTRICT

DUVAL COUNTY—Argo's Bolte 1, sec 18, completing, td 5350 ft. Bennett & Stanolind's Yates A-1, sec 321, dr below 2000 ft. Corpus Christi & Taylor's Parr 1, dr 1000 ft. Magnolia's Duval County Ranch 1, sec 87, dr 1075 ft; Hoffman 1, sur 111, cor 4750 ft. Petroleum Producer's Worden & Drought C-1, sur 157, testing 7 in csg at 1251 ft, td 1506 ft. Rowan and Hope's Gravis 1, sec 90, dr 1700 ft. Schimmel's Hagist 5, sec 265, dr 1865 ft. Stratton's Applerbach, sur 342, dr below 1000 ft. Sun's Roos 1, sur 73, ru. Thompson's Robles 1, sur 68, dr 150 ft. Wright's Hyatt 1, Sweden Farm Lots subd, dk.

LA SALLE COUNTY—Ewing's Pugh 1, sur 93, set sur csg, sd.

McMULLEN COUNTY — W. T. & T.'s Shiner 1, sec 36, lcn.

STARR COUNTY—Borah's Garcia 1, por 71, dr 450 ft; Martinez 1, por 70, dr 400 ft; Martinez 2, por 70, dr 100 ft. Collins' Guerra 1, sh 20, Cruz gr, cutting out ds, td 6609 ft. Lewis' Guerra 1, por 55, cor 1050 ft.

WEBB COUNTY — Anderson & Moore's Benavides 1, sur 692, dr 2000 ft. French's Benavides 4, sur 1122, cor 2150 ft. Randon's Swift 1, sur 746, lcn.

SAN ANTONIO DISTRICT

ATASCOSA COUNTY—Allison's Mischwitz 1, Garza sur, sd 265 ft. S. W. R.'s Miller 1, Atascosa Colony Farms subd, sd 435 ft. Surley & Phalon's Krisch 1, Dierks sur, reported dr around 200 ft.

BASTROP COUNTY—Humble's Hillsman 1, Cunningham sur, wocs, 1600 ft.

BEXAR COUNTY — Harrison, Fain & Smith's Schuwirth 1, Garza gr No. 2, dr 1250 ft. Hickok & Reynolds' Ewert 1, sur 201½, sd woo to dd, 3006 ft. Nami's Field 1, Bustillos sur, dr 85 ft. Noake's Oppenheimer 1, Miller sur, sd 200 ft. Philtop's Cassin 1, Rodriguez sur, td 1189 ft, bailed dry. Walkowiak's Peterson 1, Virm sur 195, testing 1285 ft.

BURLESON COUNTY—Red Bank's Coffield 1, Santef sur, dr 2740 ft.

CALDWELL COUNTY—McNeill's Wattinger 1, Pace sur, dr 1000 ft. Owens & Van Wagnen's Smith 1, Roe sur, swabbing, dr plugs from 7 in csg set at 2112 ft, td 2323 ft. Richards' Schone 1, Maxwell sur, fsg for bit, td 629 ft. Tinkle's Blackwell 1, Roe sur, dr 1000 ft. Whittington's Gilmer 1, Williams sur, dk.

EDWARDS COUNTY — Evans & Love's Brown 1, G. W. T. & P. sur, dr lime 6255 ft.

FRIO COUNTY—Pagenkopf & Jamieson's Houston 1, Figuerroa sur 151, still pumping oil and wtr, will shoot with nitro-glycerine, td 2651 ft.

MAVERICK COUNTY—Wellington's Chittim 1, sec 129, testing, td around 5700 ft in lime; Chittim A-1, dr below 3800 ft.

MEDINA COUNTY—Cromwell's Tondrie 1, Rogers sur, dr below 600 ft. Dykstra's McMenmey 2, Pettus sur, mim. Ewing's Riff 1, cor below 585 ft, oil show in pits, td in serpentine. Gaston & Brown's Sanne 1, sur 105, ru. Gee & Tarver's Conrad 1, sur 469, lcn. Pepper & Taylor's Saathoff 1, sur 271, sp. Trentman & Merrit's Carle 1, sur 72½, cor 1890 ft. Walker's Zuberbueler 1, sur 391, ru.

MILAM COUNTY — Tuxedo's Graham 1, Cronea sur, cor 1711 ft; Graves 1, 1172 ft, set csg. Texas Empire's Jourdan 1, Valle gr, dk.

WILLIAMSON COUNTY—Aldridge's Kroschewsky 1, Parrass sur, testing, td in Dobie, 1035 ft, 7 in csg at 969 ft. Pierce's Mattick 6, White sur, dr 800 ft.

TEXAS GULF COAST

BRAZORIA COUNTY—Sam Dunnam's Settegast 1, Pearland prospect, T. J. Green sur, abn 6543 ft. Pure's State Prison Farms 1, Peach Point area, S. F. Austin sur, preparing to dr ahead at 6515 ft.

CHAMBERS COUNTY—A. A. Cameron's White 1, Canada Ranch area, S. Brill sur, coring shale 6368 ft.

FT. BEND COUNTY—W. S. Boyle's Spencer 1, Simon area, T. Westhall sur, dr sand 4395 ft. Lomack Oil Co.'s Armstrong 1, n of Boling, S. Miller sur, dr shale 4977 ft.

GALVESTON COUNTY—Sun's Cade & Co. 1, Bolivar prospect, A. Dickson sur, preparing to spud.

HARRIS COUNTY — Chapman Minerals Corp.'s Harrison 1, n of Deer Park, W. M. Jones sur, dr shale 2900 ft. O. W. Killam's Sweeney Estate 1, e of Ogburn sur, G. Williams sur, coring shale 6647 ft. West Prod. Co.'s Snowden 1, J. Lindsey sur, Clear Lake area, coring sand 6000 ft.

MATAGORDA COUNTY—J. K. Dorrance's Adamick 1, Blessing area, I. & G. N. Block 7, dr shale 4275 ft. Superior Drilling Co.'s Kruger 1, McCrosky area, C. Warren sur, testing 6695 ft.

SAN JACINTO COUNTY—J. W. Oliphant et al's Gibbs 1, nwc of County, C. McKim sur, mim.

WHARTON COUNTY—Strake's Poole 1, Lissie area, G. H. & H. sur, dr shale 6432 ft.

WYOMING

ALBANY COUNTY—Wyco Oil Co.'s Chappell 2-X, ne ne nw 33-21n-76w, abd at 2546 ft, td in Sundance.

CARBON COUNTY—Italo Petroleum Corporation's Tunney-Bragg 1, ne se nw 11-26n-81w, dr 1869 ft. Wyco Oil Co.'s Union Pacific 1, ne se ne 3-33n-79w, rur.

FREMONT COUNTY—Stanolind Oil & Gas Co.'s Johnson 1, cse se 3-33n-96w, tested 5 lbs. in upper Morrison and coring ahead at 8363 ft for Sundance.

NATRONA COUNTY—General Petroleum Corporation's Government 1, nw nw se 21-35n-77w, coring at 7156 ft for 2nd Wall Creek, objective formation.

WESTON COUNTY—John Brorby's George 1, sw se nw 12-47n-64w, topped Leo horizon at 2012 ft and dr in to test. Well has so&sg.

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EARTH DRILL
The Buda Company

The Buda Company, Harvey, Illinois, recently sent its new truck mounted Buda-Huron earth drill demonstrator on an extensive tour. This earth drill is mounted on a 1½-ton truck of 131-inch wheel base. It is particularly suitable for soil testing and work of similar nature.

The new earth drill digs holes to 42 inches in diameter or to 50 feet in depth. In average soil it digs a 6-foot hole, 24 inches in diameter, in 3 minutes, and a 20-foot hole in less than 30 minutes. It is equipped with either a 2-cylinder or 4-cylinder gasoline engine. All parts of the drill head are assembled in one unit, and the drill head is dust proof. The chains on the lifting mechanism are self-cleaning, so no mud or dirt can lodge in them. The gearing in the lifting mechanism is fully enclosed so that dirt carried up by the spindle cannot get into the bearings or gears.

Buda-Hubron Earth Drill

One of the outstanding new features of this complete unit is the structural aluminum skids which are used in crossing ditches. These skids are 9 feet long, weigh only 80 pounds each and are easily handled by one man. The two pieces of which the skid is made are not joined, leaving a narrow opening which runs the full length of the skid. This permits water and mud to drain through.

VENTILATING EQUIPMENT
South Bend Air Products, Inc.

South Bend Air Products, Inc., 322 East Colfax Avenue, South Bend, Indiana, is offering an improved line of industrial ventilating equipment.

There are two-, four- and six-blade "Dynaflow" fan units in sizes from 16 to 36-inch diameter, having air deliveries from 1240 to 26,000 cubic feet per minute, also "Aerospot" fans of the mobile and portable type in sizes from 20 to 36-inch diameter which are effective as man coolers at distances from 50 to 175 feet.

The fan blades on all these units are designed to produce uniform air velocity across the entire working portion of the fan disc. All fan blades are manufactured from the highest strength aluminum alloy drop forgings.

Intake rings for all "Dynaflow" fan units are designed to prevent back flow, and to reduce tip losses in the blades, and are manufactured from rolled steel.

All motor supports for the fan units are manufactured from rolled steel, and are designed to have negligible resistance to air flow. Especially designed motor supports are available for use on fans which are to move corrosive gases.

Special corrosion-resisting finishes can be supplied on fans which are to move acid and alkali fumes.

Long hour, high efficiency, totally enclosed motors of proper characteristics for use on any electrical circuit are standard equipment.

INTEGRAL-JOINT DRILL PIPE
Jones & Laughlin Steel Corporation

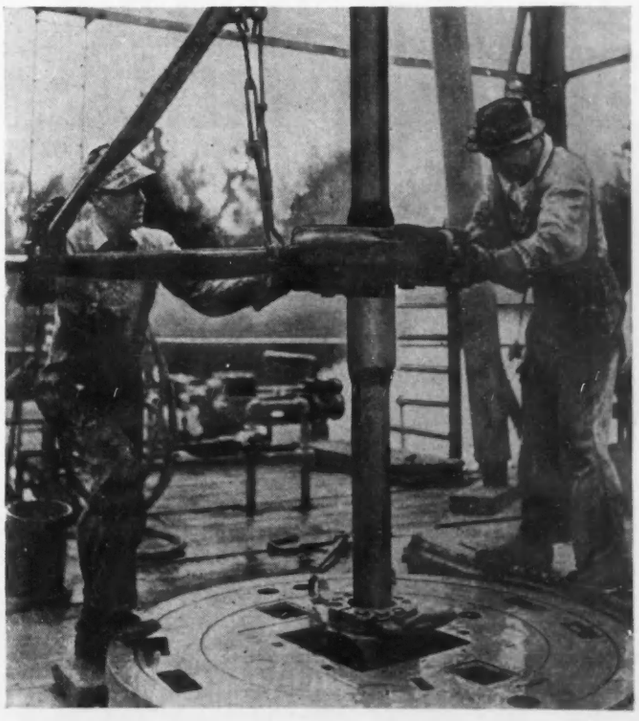
With the shipment this month of several strings of its recently improved integral-joint drill pipe, the Jones & Laughlin Steel Corporation, Pittsburgh, announces further important refinements in this exclusive product which it has supplied to the oil trade for several years.

"As in the past," the announcement says, "this improved drill pipe has a forged upset tool joint integral with the pipe which eliminates the conventional type tool joint. However, this design has been further perfected by an increase in the overall length of the upsets on the pin and box ends, by a new special heat treatment of the upset and by the use of an improved J & L Blue Ribbon steel in its manufacture.

"The lengthening of the pin end of the pipe eliminates the necessity of tonging on the body of the pipe itself, thereby preventing the possibility of physical damage to the pipe by the crushing action of the tongs. In the new, as in the previous design, sufficient stock is provided on the upset box and pin ends for re-threading which can be done in any oil country shop. No heat treatment is required before or after the re-threading operation.

"The lengthening of these upset ends has been made possible by the installation in the Jones & Laughlin mill of an upsetter which was developed especially for this work on the specifications by the J & L engineering department. The first of its size ever built, this huge upsetter is not only capable of forging the longer upset of the new design, but has made possible the manufacture of integral joint drill pipe in two new large sizes, 5-9/16-inch O.D., and 6⅝-inch O.D.

"After the upsetting operation and before threading, the entire joint is heat treated so that maximum physical prop-



A string of the recently improved J & L integral joint drill pipe being run in the hole.

erties in strength and hardness are obtained with maximum toughness as measured by ductility and impact strength. This heat treatment in well-made steel of this grade produces a metallographic structure of exceptional refinement and results in a hardness in the tool joint end of the integral joint drill pipe comparable to that commercially available in a tool joint of conventional design.

"The improved J & L Blue Ribbon grade of steel used in the manufacture of the integral joint drill pipe was made possible by changes in composition which impart structural stability without temper brittleness so that the desirable variation of properties can be accomplished with no sharp variations to form points of weakness.

"The early advantages of the integral joint drill pipe have been retained in the new design. The smooth easy change of diameter in the interior of integral joints, which greatly reduces turbulence and gives increased mud volume with reduced mud pump pressures, is even more streamlined and lends itself readily to advanced ideas in drilling practice."

DIESEL ENGINE

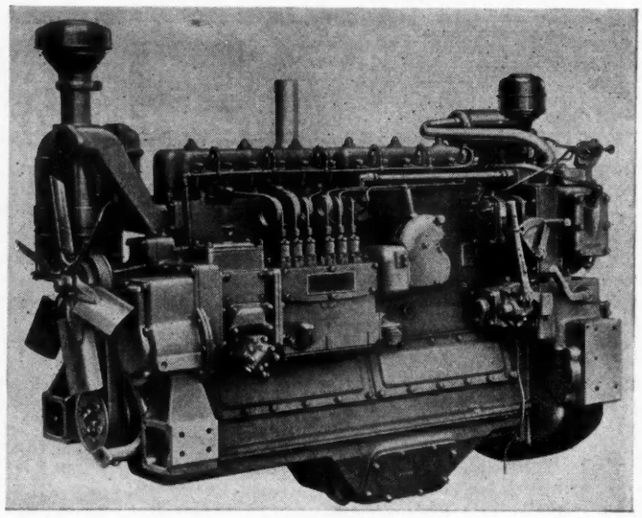
Caterpillar Tractor Company

Caterpillar Tractor Company, Peoria, Illinois, has announced a new, 6-cylinder, 66-horsepower industrial Diesel engine, designed as D4600.

The new engine has a bore and stroke of 4¼ x 5½ inches, and turns at 1400 RPM, normal governer speed. Exceptionally smooth running and unusually flexible, the model is well suited for use in shovels, draglines and hoists, or connected to a generator as an electric power producer.

The engine is of the four-stroke-cycle, valve in head, water-cooled design, and features solid injection of the fuel into precombustion chambers. The fuel injection system is similar to that of all 'Caterpillar" Diesels. Both the injection pumps and injection valves are set at the factory, and require no field adjustment.

In construction work, the new engine will power ¾-yard shovels and draglines. As a source of electric current, it will be offered as a unit with a 35 KW generator at 50 cycles at 1500 RPM; or as a 32½ KW generator at 60 cycles at 1200 RPM. These sizes are well suited to small radio stations in the United States and abroad, as well as a source of main or auxiliary power at airports. As a power unit, the D4600 engine will meet many irrigation pumping demands, and will serve as standby power for smaller municipal pumping plants, etc. On all these jobs, at rated load of 50 horsepower, the engine uses not more than three gallons of low-cost fuel an hour.



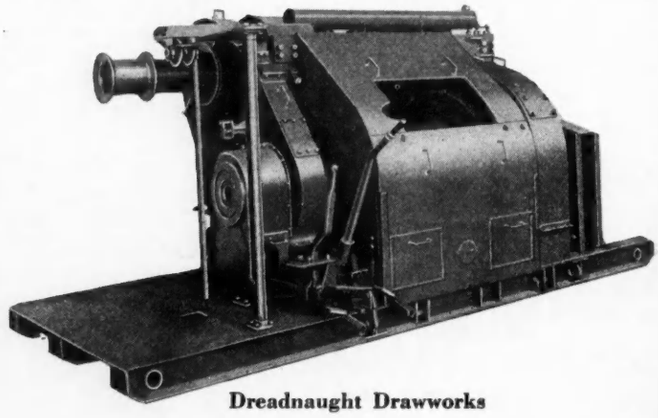
Caterpillar Diesel

DRAWWORKS

Beaumont Iron Works Company

Beaumont Iron Works Company, Beaumont, Texas, is now manufacturing its standard No. 11 and No. 12 Unitized Drawworks equipped with complete oil-bath guards.

Some of the features of the oil-bath guards are: complete closure of chains, sprockets and clutches, resulting in a saving of oil; dust and dirt-proof, preventing contamination of lubricant; adequate lubrication, insuring long chain and sprocket life; lubrication of clutches, providing trouble-free action and increased life of shifter parts which are mounted in bronze bushings.



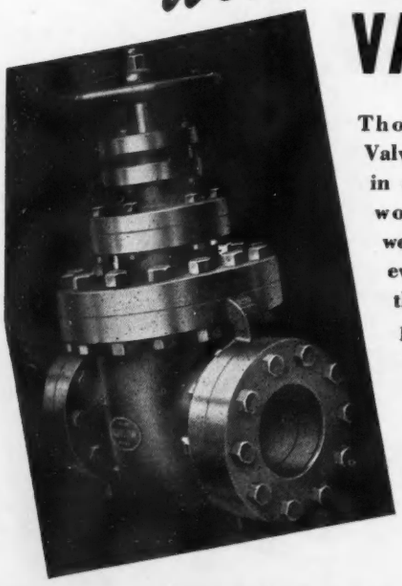
Dreadnaught Drawworks

A roller chain-driven gear pump picks the oil up from a reservoir under the skids and circulates it to the spray nozzles located in each guard. A separate reservoir is supplied above the headboard to lubricate the engine and rotary chains independent of the circulation system. This prevents draining and contaminating the oil in the enclosed system.

These drawworks are of the heavy-duty type and embody all the improvements brought out on the standard drawworks, including the free-rolling slow sprocket and clutch, which increases shaft strength and eliminates wallowed keyways and twisted shafts; compression brake linkage, providing increased braking area and consequently lengthened brake lining life and elimination of the dangerous kick of the old type brake lever. Roller bearings and two-step clutches enable the operator to handle these rigs with ease.

Complete specifications may be obtained by addressing a request to the manufacturer.

HOLD EVERYTHING *with* LUDLOW VALVES



Thousands of Ludlow Valves are on active duty in oil fields all over the world. Some of them were installed 25, 30, even 35 years ago—and they're still holding up perfectly. They are simply and sturdily built, and their powerful wedge design assures positive closure. Write for catalog, which gives full details.

The LUDLOW VALVE MFG. CO.
TROY, NEW YORK

REDUCE POWER CONSUMPTION AND ROD STRESS *with the* HUF-DUO INSERT PUMP

The outer tube of the Huf-Duo Insert Pump is the moving part, and displacement of fluid comes on the down stroke. Due to these and other features, and to the high quality of manufacture, this insert pump saves time and labor, prevents sanding, and gives long, efficient service.

Oil-field distributors carry Hough Products in stock.

THE CHAS. N. HOUGH MFG. COMPANY

Franklin, Pa., and Tulsa, Okla.

See Our Exhibit
INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY, 14-21

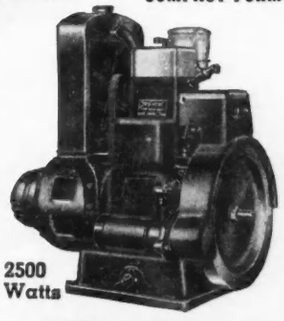
HOUGH OIL-WELL SPECIALTIES

DIESELECTRIC

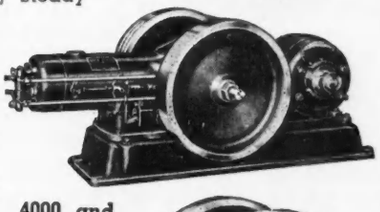
DIESEL POWER IN ITS MOST COMPACT FORM

ELECTRIC STARTING
"FINGER-TIP CONTROL"

Make your own light and power with WITTE "Finger Tip Control" Vertical Dieselectric Plants. Start and stop at engine or from a remote point. Produces 1500 or 2500 watts on less than one pint of non-explosive fuel **per kilowatt.** 110 volt A.C. or D.C. for direct lighting, 32 volt for battery charging. Sturdy, compact—always ready to deliver full, steady power. The most important development in the small Diesel field.

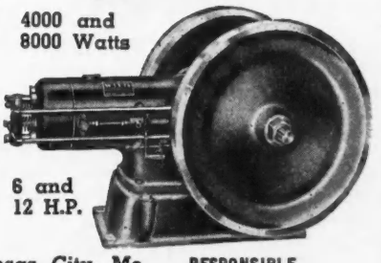


2500 Watts



Manually started vertical Dieselectric Plants 1500 and 2500 watts. Horizontal manually started Dieselectric Plants 4000 and 8000 watts. Here is Diesel power in its smallest form, incorporating every feature of modern engineering.

4000 and 8000 Watts



6 and 12 H.P.

STATIONARY ENGINES

The WITTE Diesel Engine with its fewer parts is a marvel of simplicity and is offered in 4, 6 and 12 H.P. sizes. You pay less to own it, less to run it. **Do it safer and more economical the "Diesel Way."**

1964 Oakland Ave., Kansas City, Mo.

WITTE ENGINE WORKS

RESPONSIBLE DIESEL DEALERS WANTED

More and Cleaner Pipe Cuts

per cutter blade

with the RIDGID Cutter

Your experience with pipe tools makes it easy for you to see at once why this patented RIDGID Cutter saves you money on cutter wheels and gives you far cleaner cuts.

For the RIDGID Wheel has a thin blade coined from special rolled alloy tool steel, hammered and heat-treated to give it extra guts, then assembled in a solid hub. It rolls right through any pipe, quickly, easily, leaving practically no burr. Far more cuts per wheel, saves you bother and expense of replacement.

Cutter housing reinforced, strong and true-cutting. A tool you enjoy owning and using. Hundreds of thousands in use. Try one at your Supply House. For better cutting and economy, buy the RIDGID Cutter.

The Ridge Tool Co., Elyria, Ohio

Save 75% of Your Pipe Wrench Repairs

Millions of users have found that they actually do save nearly all wrench trouble and repair expense with the powerful all-alloy RIDGID.

RIDGID PIPE TOOLS

Stop in and visit our BOOTH No. 28-29-30 in the Texas Building at the Oil Show, Tulsa, Oklahoma, May 14-21

This Week with the Industry's EQUIPMENT SUPPLIERS

Arutunoff Elected Head of Reda Pump Company

A. Arutunoff was elected president of the Reda Pump Company after the annual stockholders meeting at Bartlesville, Oklahoma, last week. S. C. Beesley was elected first vice president and treasurer and P. E. Loye was chosen second vice president and sales manager. Reed Crites was elected secretary, Homer Morgan, assistant treasurer, and Dwight Fries, assistant secretary.

At the meeting of the stockholders, the following were elected to the board of directors: A. Arutunoff, H. E. Koopman, J. L. Overlees, Joe Crow, and S. C. Beesley of Bartlesville; Clyde Alexander, Dallas, Texas, and Walter Miller, Ponca City.

At the first meeting of the board of directors held following the stockholders' meeting a dividend of 15 cents per share of common stock was declared. The dividend is payable April 5 to stockholders of record on April 1.

The Buda Company Appoints Mangan Vice President

R. K. Mangan has been appointed vice president of The Buda Company in charge of advertising, domestic and export sales of diesel and gasoline engines sold to the automotive, general industrial, marine, stationary and oil field trade. Mangan has been associated with the company in an engineering and sales capacity for approximately 20 years.

General Motors Names Diesel Sales Managers

Appointment of George T. Mahaney and James D. Platt as eastern and western retail sales managers, respectively, of the Diesel Engine Division, General Motors Sales Corporation, has been announced by William J. Davidson, general sales manager.

The two, whose territories will be divided roughly by an imaginary line extending from Mobile, Ala., northward through Chicago and Milwaukee, will maintain their offices at the headquarters of the new Diesel division in Cleveland.

Mahaney attended Gettysburg College at Gettysburg, Pa., receiving his degree in 1922, while Platt was graduated from the Sheffield scientific school of Yale University in 1924. The former is a member of Alpha Tau Omega, the latter the Colony club and Berzelius society.

The newly appointed eastern manager attended primary school at Sparrows Point, Md., a suburb of Baltimore, where he also made use of the opportunity afforded by the shipyards to learn the machinist's trade. A portion of his secondary school education was obtained in the same city, the remainder at Gettysburg Academy, a preparatory school operated in conjunction with the college.

Mahaney's first position, following his graduation from college, was with an independent truck manufacturer at Wabash, Ind. He remained with this concern for four years, when he joined Chevrolet Motor Division of General Motors as district manager with headquarters at Salisbury, Md. Two years later, he went to Baltimore in a similar capacity, then to the Buffalo zone office as sales promotion manager. In 1930, he was transferred to the central office in Detroit as assistant sales promotion manager. He became regional manager at Atlanta in charge of the Chevrolet direct mass selling program in 1934, returning to Detroit in 1936 to handle special assignments under the direction of the general sales manager.

Platt attended grammar school at Dayton, Ohio, but went to the Asheville school at Asheville, N. C., for his secondary school education. Upon graduation from the university, he joined Portland Oxygen and Hydrogen Company, of Portland, Ore., working his way up to a vice presidency in the six years he was with the firm. When it was sold to another concern, he joined General Motors as a special representative, handling matters pertaining to the Buick, Oldsmobile and Pontiac lines of passenger cars. In 1934 he became district manager of the corporation's Pontiac Motor Division with headquarters in Portland, and later was transferred to Seattle.

New Distributor for Lee C. Moore & Company

Union Construction Company, 1725 West Anaheim Street, Long Beach, California, announces that it is the successor to the R & R Construction Company, as Pacific Coast distributors and erectors of Lee C. Moore & Company steel derricks.

Officers of the new company include: W. B. Rector, president; E. M. Findlay, vice president and W. W. Hoagland, secretary-treasurer.

Scivally Brothers Offer Fishing Service at Lake Charles

B. M. (Skid) Scivally, active as a fisherman in the Gulf Coast area for the past several years, has opened a store and warehouse at 1429 East Broad Street, Lake Charles, Louisiana, in association with his brother, H. R. Scivally, formerly with Arkansas Fuel Oil Company at Shreveport.

Scivally Brothers will handle a complete line of Specialty Oil Tool Company's fishing tools and experienced operators will be available at all hours to undertake fishing operations.

J. R. PEMBERTON, California Oil Umpire, who, with a party of scientists, cruised down the west coast of Mexico to Central American jungles, where they collected a large number of specimens of birds, mammals and reptiles, is expected to return to his duties by April 15.

Standco NO-SMOKE

STANDCO BRAKE LINING

Nothing novel—no bunk—but it gets the job done without scoring brake rims. See page 1940, Composite Catalog.

STANDARD BRAKE LINING CO.

SIMPLEX JACKS

Emergency Jacks
Riggers' Jacks
Pull Rod Jacks
and Jacks for every
Oil Field Need

No. 310

STOCKED BY LEADING SUPPLY HOUSES
TEMPLETON, KENLY & CO., CHICAGO

MURRAY RUBBER CO.

Specializing in the manufacture of High Quality
Mechanical Rubber Goods
Prompt, Efficient Service to
OIL FIELD EQUIPMENT MANUFACTURERS
Molded, Mandrel and Extruded Packers and Washers
Houston's Only Exclusive Jobbing Manufacturing plant. Equipped with Calender, Mill, Tuber, Presses and Pot Vulcanizers.
FACTORY TRAINED MEN.
1822-24 Washington Ave. Houston, Texas

SPECIALTY OIL TOOL COMPANY SOTCO USA

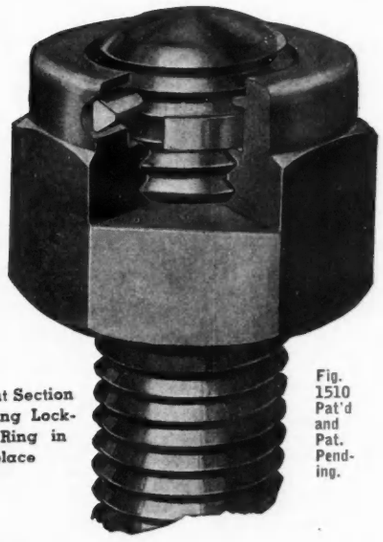
SCIVALLY BROS.
RENTAL SERVICE
SOTCO ROTARY FISHING TOOLS
B. M. (SKIP) SCIVALLY, Manager
- Complete Stock of Fishing Tools for any emergency.
- Experienced operators available at all hours.

1429 E. Broad St. - Phone 2904-2856
LAKE CHARLES, LA.

FOR SALE: Gas Engines & Compressors. Two 160 HP Cooper-Bessemer twin gas engines, with two Type XB Ingersoll Rand Compressors and two 70 HP C-B Engines with two ER1 Ingersoll compressors, all belt driven with belts, starting unit, pumps, etc., in first-class condition at bargain prices for immediate removal. **WILSON PIPE CO., 2418 E. 54th St., Los Angeles, Cal.**

PRODUCTION DEPARTMENT MANAGER

Wanted by progressive organization a man experienced in acquiring leases, producing leases and supervising their development and production. Knowledge of Texas and Louisiana fields particularly desirable. State experience in detail, age and salary in last position. All replies will be treated confidential. Address Box 100, The OIL WEEKLY, Houston, Texas.



Cutout Section showing Locking Ring in place

Fig. 1510 Pat'd and Pat. Pending.

UNSHAKO

The Nut that Can't Shake Loose

"LIVE ACTION"

. . it's constantly on guard keeping these nuts from shaking loose . . . . . .

Live Action . . . that, we believe, is the best description of the way the built-in locking ring springs into a gripping position the instant any backing off tendency is felt. Just as a brake band works does this ring perform. It's made as a part of the nut itself . . . not a separate attachment to be lost or overlooked during assembly. Your protection against vibration's efforts is positive. Don't fail to get full particulars about "Unshako" . . . see how easy they are to apply . . . how tight the grip they take . . . how they're removed with only an ordinary wrench.

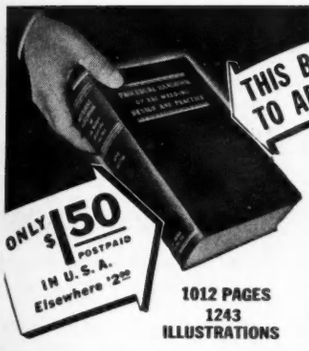
STANDARD PRESSED STEEL CO.

BRANCHES BOSTON DETROIT INDIANAPOLIS

JENKINTOWN, PENNA.

Box 567

BRANCHES CHICAGO ST. LOUIS SAN FRANCISCO


THIS BIG NEW BOOK GUIDES YOU TO ADVANCEMENT AND PROFIT
ONLY $1.50 POSTPAID IN U. S. A. Elsewhere $2.00
1012 PAGES
1243 ILLUSTRATIONS

PROCEDURE HANDBOOK OF ARC WELDING DESIGN AND PRACTICE

The big new fifth edition Procedure Handbook gives you valuable, up-to-date information that will enable you to improve your position and increase your earning power by taking advantage of the opportunities of welded design and application. This complete, authoritative Handbook gives you quickly the **right** answers to problems in the development, production or utilization of steel products. It stops risky guess work and prevents costly errors. It is one of the wisest investments you can make for your future welfare.

★

Send order to

THE GULF PUBLISHING COMPANY

P. O. Box 2811, Houston, Texas

Have you ever tried a

B - M - W

Admore Liner Barrel?

This inexpensive unit is used wherever oil is produced from pumping wells. An inverted type insert pump. Here we show one equipped with an 8-Cup Plunger. The ADMORE Pump may also be fitted with a combination Cup-and-Packing Plunger, and gives amazing results with the TEX TYPE Plunger.

Made for 2", 2½" and 3" Tubing, and in lengths to handle any desired stroke. The pump is seated in the top of a common working barrel or in a special seating nipple in the tubing. It may also be seated with a mechanical seating device which requires no cups. And it can be used to pump from any level in the tubing when used in connection with the B-M-W ADMORE INSERT PUMP ANCHOR.

Installed without the necessity of pulling tubing. Used successfully in wells as deep as 6,000 feet. In the deeper wells the sucker rod load is much less than when standard size cups or plungers are used, while the loss in capacity is negligible due to more effective plunger stroke.

B-M-W Products are Obtainable

at supply stores, including the above described *ADMORE Liner Barrels; *ADMORE Insert Pump Anchors; *NEILSON TOOLS (Safety Sucker Rod Hooks, Tubing Hooks, Rod Elevators, Sucker Rod Sockets, etc.); *BALLS and SEATS (made for every pumping service); *TEX TYPE Plunger Fittings and Valves; and *COLLINS Belt Clamps.

BRADFORD MOTOR WORKS INC.

OIL WELL SUPPLIES

BRADFORD, PA. — TULSA, OKLA.

CATALOGS . . . BULLETINS

Helpful Publications Which Manufacturers Will Be Glad to Send Free for the Asking

Safety Devices

Willson Products, Incorporated, Reading, Pennsylvania, has just issued a new catalog of industrial safety devices. The publication, which is well illustrated, covers the complete line of eye, nose, throat and lung protectors.

Steam Jet Ejectors

Ingersoll-Rand Company, 11 Broadway, New York, announces the publication of a new Bulletin No. 9046, covering single, two, and three-stage steam jet ejectors for removing air, gas, or vapors from condensors and vacuum chambers in industrial processes. This 28-page bulletin explains the application and characteristics of ejectors and illustrates the operation and arrangement of all types of ejector with either surface or barometric precoolers, inter and aftercondensors.

Roller Chains

Diamond Chain and Manufacturing Company, Indianapolis, Indiana, recently published a new Catalog No. 617, which contains complete information on the use of roller chains for motor drives, machinery and conveyor applications. The engineering section includes new and additional data, tables, formulae, selection and installation information, much of which has never before been made available.

Bailer and Fishing Tools

The Cavins Company, 2853-73 Cherry Avenue, Long Beach, California, has published an attractive new Bulletin No. 38, which describes in detail the company's automatic hydraulic suction bailer and fishing tool. The principle of operation and its application in utilizing the potential energy of the fluid column in a well, are graphically illustrated and described in this bulletin.

Compressors

Ingersoll-Rand Company, Phillipsburg, New Jersey, presents a new 56-page catalog covering class "PRE" compressors. The new catalog embodies several unique features, notable among them being a two-page chart devoted to the interrelation of the design of the compressor and its operation in service.

Electric Drive

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pennsylvania, recently released a 12-page publication entitled "Electric Drive Selector and Hints on Maintenance." Arranged particularly for the non-technical man or for the plant maintenance man, the pamphlet describes and illustrates the requirements which must be met in selecting a motor.

Compressors

Schramm, Incorporated, West Chester, Pennsylvania, embodies in a new Bulletin No. 3815-OW the new models, new designs and new features of its Fordair compressor. The 12 pages envolve a complete presentation of portable and stationary models with their specifications.

Centrifugal Pumps

Goulds Pumps, Incorporated, Seneca Falls, New York, announces Bulletin No. 210 dealing with the various types of single-stage, side-suction, ball-bearing centrifugal pumps. It gives complete details, data and tables and all needed information.

Diesel Engines

Caterpillar Tractor Company, Peoria, Illinois, recently issued a new booklet describing various types of Diesel engines. The publication is profusely illustrated with model shots and explanatory mechanical cutaways that explain the simplicity and exactness of the engine's working parts.

Electric Tools

Stanley Electric Tool Division, The Stanley Works, New Britain, Connecticut, recently published its latest price sheet on electric tools. These new prices cancel all others previously issued.

Liquid Cooler

The Griscom-Russell Company, 285 Madison Avenue, New York, recently issued a bulletin describing a new liquid cooler with a wide range of applications.

Monel, Nickel and Nickel Alloys

The International Nickel Company, Incorporated, 67 Wall Street, New York, recently announced the release of Bulletin T-13, entitled "Nickel and Nickel-Base Alloys". This new bulletin contains consolidated and condensed information on the properties and applications of Monel in its various modifications, nickel, nickel-clad steel, Inconel, Inconel-clad steel, the Hastelloys and Illium.

Hygrometer

The Brown Instrument Company, Philadelphia, Pennsylvania, recently published a new catalog No. 6502 describing in detail the Hygrometers. This new catalog primarily deals with the operating technique of the various types of recording and controlling Hygrometers and illustrates the latest addition to these types of instruments.

Sand Blast Gun

Michiana Products Corporation, Michigan City, Indiana, announces the publication of a four-page pamphlet describing and illustrating a new sand blast gun. Besides descriptive details, a series of photographs show the smooth, uninjured finish of surface cleaned with this gun.

Fire Protection

National Fire Protection Association, 60 Batterymarch Street, Boston, Massachusetts, recently published a comprehensive 360-page volume, which gives complete information on the safe handling of both flammable liquids and gases.

Crawler Hoist

The Harnischfeger Corporation, 4400 West National Avenue, Milwaukee, Wisconsin, recently announced the release of bulletin X-39, entitled "P&H Multi-Service Crawler Hoist", which describes in detail the features combined in this general utility high-speed machine.

Hastelloy

Haynes Stellite Company, 205 East 42nd Street, New York, has issued a new 36-page booklet, entitled, "Hastelloy - High - Strength Alloys for Corrosion Resistance." This publication covers in detail chemical properties, available forms, methods of fabrication, machining and welding, and typical successful applications of Hastelloy alloys.

Gas Engines

Worthington Pump and Machinery Corporation, Harrison, New Jersey, announces the publication of an eight-page bulletin, S-550-B4C, describing its vertical, four-cycle, type AG gas engines. Directed to power users where natural, manufactured sewage or refinery gas is available, this bulletin includes complete specifications, together with typical installation views of these engines.

Direct-Current Motors

Fairbanks, Morse & Company, 900 South Wabash Avenue, Chicago, describes and illustrates in a new bulletin No. 2260 construction details of direct-current motors which have been designed to meet a wide range of requirements.

Industrial Lighting

The Lighting Division of the Westinghouse Electric and Manufacturing Company, Cleveland, Ohio, recently published a new folder describing the construction and application of the Millite lighting unit for the heavy industries. Various tests, illustrating the ability of the unit to withstand abuses, are included.

Safety Valves

The Inferno Company, P. O. Box 1138, Shreveport, Louisiana, describes in a new bulletin, No. 11, its various types of safety valves. This folder also contains a complete parts and price list.

Friction Materials

Johns-Manville, 22 East 40th Street, New York, in a new illustrated brochure, entitled "Industrial Friction Materials," has gathered comprehensive data on the complete lines of industrial brake linings and blocks and clutch facings. An important feature of this booklet is a chart which simplifies the selection of the most suitable friction material for any specified service.

Gages

Penberthy Injector Company, Detroit, Michigan, recently published a 32-page bulletin, describing the company's various types of water and liquid-level gages. It contains several tables as to dimensions, weights and prices.

Steel Castings

Vanadium Corporation of America, 420 Lexington Avenue, New York, has recently published a bulletin describing various Vanadium steels for castings and their advantages together with examples of some of the applications for each steel. Also included are complete specifications.

Pipe Fittings

S. R. Dresser Manufacturing Company, Bradford, Pennsylvania, has just released a new bulletin on no-thread fittings, Style No. 65. This well illustrated folder explains the various applications of these fittings, and contains complete tables as to specifications and list prices.

Weld Fittings

Bonney Forge and Tool Works, Allentown, Pa., has published a new catalog covering Bonney Weldolets and Threadolets, individual stock welding fittings specifically designed to make branch pipe connections such as tees, crosses, side-outlets, and the like by welding. The fittings are fully described and a large number of drawings and photographs show methods of application and utilization by various industries. Complete information is given as to sizes, weights and dimensions for both the Weldolets and Threadolets.

USE THIS COUPON

.....
MANUFACTURER'S NAME

.....
MANUFACTURER'S ADDRESS

Please send me, without obligation, free booklet described in THE OIL WEEKLY, April 4, 1938.

NAME.....

ADDRESS.....

Squeaks from the Bull Wheel

Precocious

Father Rabbit: "What's Junior looking so pleased about?"

Mother Rabbit: "Oh, he's quite proud of himself. He just learned how to multiply today."

Choose

"Have a good time at the dance tonight, dear, and be a good girl."

"Make up your mind mother."

Challenge

It was a cold morning in Southern Louisiana and a cat which had climbed to the fourble board on the derrick had frozen there. When the derrickman climbed up he found the cat and with a joking remark he threw it down on a Cajun standing on the derrick floor below.

The Cajun flared into instant ire and shouted up to the derrickman:

"It no matter me if you are five times my tall and eight times my heavy, unclimb that derrick!"

Great Relief

He had been walking with one foot in the gutter and the other on the pavement, and he was not getting on very well. After about half a mile he met a cop.

"You're drunk," said the latter.

"Oh, is that what it is?" he replied, "Thank heaven! I thought I was lame!"

Outwitted

"Got away, has he? Did you guard all the exits?"

"Yep, but we think he must have slipped through one of the entrances."

Safety Stories

The classic safety story of all times is that one about the machinist who had a finger cut off with a circular saw. Following the accident, the safety committee made an investigation of the affair right on the spot. They were all gathered around the saw, and the safety supervisor started the proceedings by asking the victim to explain exactly how it happened. "Well," he said, "to tell you the truth, I can't tell much about it. I was just standing here, and I put my hand up like this, and . . . shucks, there goes another one."

Not a One-Man Job

"Shine, please, boy," said the big soldier to the shoeblack.

The boy looked down at the vast expanse of boot before him. Then:

"Bert," he called out to another boy, "Gimme a hand—I've got an army contract!"

Dad Could Use a Loan

The rich young man approached the girl's father with some misgivings.

"Er—er, I suppose, sir," he began, nervously, "that you are aware I have been making advances to your daughter?"

Father patted him on the back.

"Yes, and now what about her poor old Dad, eh?"

Shoe Polish Sandwiches

The wife cut her husband some sandwiches for his lunch. She 'phoned him some time later.

"Dear," she said, "have you eaten any sandwiches?"

"Yes," he replied. "They were very nice. Why?"

"Oh, nothing," she told him. "Only I suppose you'll have to clean your brown shoes with meat paste tomorrow!"

Prudent!

Wife: "I want some money."

Tight-fisted Hubby: "Say, what did you do with that last dollar I gave you?"

Wife: "I spent 37 cents in 1936, 40 cents 1937, and 23 cents this year."

Aha?

At a public dinner a speaker spoke for half an hour and looked like going on for another 30 minutes.

A guest turned to a woman near him and remarked: "Can nothing be done to shut this man up?"

"Well," responded the other cheerfully and frankly, "I've tried for 15 years!"

Cause for No Worry

The husband found this farewell note left by his wife when he arrived home:

"Dear Euclid: Forgive and forget me forever. Have eloped with our new chauffeur. Constance.

"P. S. I paid the electric bill and your clean laundry is laid out, so there's nothing to worry about."

How Sweet

A young lady pulled up to the curb and smiled sweetly when the policeman informed her sternly that she was doing 75 miles an hour. "Isn't that marvelous," said she, "and I am only learning to drive."

It Helps

A coffee salesman was traveling through the South, and as he waited for a train in a little southern town he chatted with a lazy looking colored man idling on a bench at the station.

"Ever drink coffee?" he inquired, with an eye to stirring up interest in his line.

The colored man allowed as how he did. He drank a lot of coffee. Fifty cups a day, he answered.

"Fifty cups a day! Doesn't it keep you awake?" inquired the astonished coffee salesman.

"Well, it helps," answered the colored man.

Hm'm!

A church congregation was giving a reception to a former pastor and his wife. The present pastor in the receiving line greeted his predecessor heartily. "Ah, how pleasant to see you again," he said. "And is this your most charming wife?"

The other minister fixed his host with an accusing stare. "This," he said reprovingly, "is my only wife."

Skeptic

"Any questions about George Washington?" asked the teacher.

"Yes'm," replied the little boy with freckles. "Did the G-men let the camera boys take his picture in the middle of the Delaware? And was that real snow, or confetti?"

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Gotkool
WATER CANS
& COOLERS
GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today! . . . . . .
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